Nations Unies S/2016/738

Conseil de sécurité

Distr. générale
24 août 2016
Français
Original : anglais

Lettre datée du 24 août 2016, adressée au Président du Conseil de sécurité par le Secrétaire général

J'ai l'honneur de vous faire tenir ci-joint le troisième rapport du Mécanisme d'enquête conjoint de l'Organisation pour l'interdiction des armes chimiques et de l'Organisation des Nations Unies.

Je vous serais reconnaissant de bien vouloir porter le texte de la présente lettre et du rapport à l'attention des membres du Conseil de sécurité.

(*Signé*) **BAN** Ki-moon

16-14788 (F) 290816 300816

Lettre datée du 24 août 2016, adressée au Secrétaire général par le Groupe de direction du Mécanisme d'enquête conjoint de l'Organisation pour l'interdiction des armes chimiques et de l'Organisation des Nations Unies

Le Groupe de direction du Mécanisme d'enquête conjoint de l'Organisation pour l'interdiction des armes chimiques et de l'Organisation des Nations Unies a l'honneur de vous faire tenir ci-joint le troisième rapport établi par le Mécanisme en application de la résolution 2235 (2015) du Conseil de sécurité.

Le rapport fait le point des activités du Mécanisme au 19 août 2016. Il présente également l'évaluation du Groupe de direction et ses conclusions jusqu'à présent, sur la base des résultats de l'enquête menée sur les neuf cas sélectionnés d'utilisation présumée de produits chimiques comme armes en République arabe syrienne.

Le Groupe de direction tient à remercier le Secrétaire général de sa confiance. Il remercie également le Secrétariat, notamment le Bureau des affaires de désarmement, le Département des affaires politiques et le Bureau des affaires juridiques, ainsi que les fonctionnaires de l'Organisation des Nations Unies de l'appui inestimable qu'ils lui ont fourni à New York, à Genève et à Damas. Il exprime sa reconnaissance aux dirigeants et au personnel de l'Organisation pour l'interdiction des armes chimiques de leur appui précieux. Il rend également hommage au personnel du Mécanisme, qui a travaillé sans relâche et avec professionnalisme pour mener l'enquête et la faciliter.

Le Groupe de direction remercie les membres du Conseil de sécurité de leur soutien au Mécanisme. Il leur exprime également sa gratitude, ainsi qu'aux autres États Membres de l'Organisation des Nations Unies, pour les informations essentielles et les ressources financières qu'ils ont fournies au Mécanisme durant son enquête. Il rend aussi hommage à toutes les autres organisations, entités et personnes qui ont aidé le Mécanisme dans ses travaux.

Le Groupe de direction tient à souligner qu'il a mené ses travaux de manière objective, indépendante et professionnelle, et conformément au mandat que le Conseil de sécurité lui a confié dans sa résolution 2235 (2015). Il est seul responsable de ses conclusions.

Chef
Mécanisme d'enquête conjoint de l'Organisation
pour l'interdiction des armes chimiques
et de l'Organisation des Nations Unies
(*Signé*) Virginia **Gamba**

Membre du Groupe de direction
(*Signé*) Adrian **Neritani**

Membre du Groupe de direction
(*Signé*) Eberhard **Schanze**

Troisième rapport du Mécanisme d'enquête conjoint de l'Organisation pour l'interdiction des armes chimiques et de l'Organisation des Nations Unies

Table des matières

* Les annexes sont distribuées uniquement dans la langue de l'original et n'ont pas été revues par les services d'édition.

I. Introduction

1. Le présent rapport est soumis en application de la résolution 2235 (2015) du Conseil de sécurité portant création du Mécanisme d'enquête conjoint de l'Organisation pour l'interdiction des armes chimiques (OIAC) et de l'Organisation des Nations Unies, chargé d'identifier dans toute la mesure possible les personnes, entités, groupes ou gouvernements qui ont perpétré, organisé ou commandité l'utilisation comme armes, en République arabe syrienne, de produits chimiques, y compris le chlore ou tout autre produit chimique toxique, ou qui y ont participé d'une manière ou d'une autre, dans les cas où la Mission d'établissement des faits de l'OIAC avait déterminé que des produits chimiques, y compris le chlore ou tout autre produit chimique toxique, avaient été utilisés ou probablement été utilisés comme armes en République arabe syrienne.

2. Dans ses deux rapports précédents (S/2016/142 et S/2016/530), le Mécanisme a fourni des informations sur les méthodes qu'il a appliquées et les enquêtes qu'il a menées du 24 septembre 2015, date de sa création, au 10 juin 2016. En outre, il a tenu le Conseil de sécurité informé de ses progrès chaque mois.

3. Dans le présent rapport, le Mécanisme fait le point de ses activités au 19 août 2016. Il présente également l'évaluation du Groupe de direction et ses conclusions à ce jour, établies sur la base des résultats de l'enquête menée sur les neuf cas sélectionnés d'utilisation présumée de produits chimiques comme armes en République arabe syrienne. Le rapport contient 10 annexes : une sur les méthodes de travail du Mécanisme, et une pour chacune des situations faisant l'objet d'une enquête, comme suit :

a) Kafr Zeïta (province de Hama), le 11 avril 2014;

b) Kafr Zeïta (province de Hama), le 18 avril 2014;

c) Tell Méniss (province d'Edleb), le 21 avril 2014;

d) Tamaniaa (province d'Edleb), les 29 et 30 avril 2014;

e) Tamaniaa (province d'Edleb), les 25 et 26 mai 2014;

f) Qaminas (province d'Edleb), le 16 mars 2015;

g) Sarmin (province d'Edleb), le 16 mars 2015;

h) Binnich (province d'Edleb), le 24 mars 2015[1];

i) Marea (province d'Alep), le 21 août 2015.

4. Les annexes contiennent une description des faits et présentent en détail les constatations, les évaluations et les conclusions du Groupe de direction jusqu'à présent.

II. Historique

5. Le Mécanisme est dirigé par un Groupe de direction composé de trois membres : un chef, Virginia Gamba (Argentine), et deux adjoints, Adrian Neritani

[1] Pour la Mission d'établissement des faits, les faits se sont déroulés le 23 mars 2015, alors que pour le Mécanisme, ils ont eu lieu le 24 mars 2015 autour de 19 heures.

(Albanie) et Eberhard Schanze (Allemagne), chargés respectivement des composantes questions politiques et enquêtes.

6. Le Mécanisme compte un bureau politique, basé à New York et chargé de procéder à des analyses politiques, de donner des conseils juridiques et de gérer l'information et les relations avec les médias; un bureau d'enquête, basé à La Haye et chargé de procéder à des analyses chimiques et médicales, à des analyses de médecine légale, à des analyses de matériel militaire et à des analyses d'autres informations pertinentes; un bureau de planification et d'appui des opérations, basé à New York et chargé d'apporter un appui au Groupe de direction, à la composante questions politiques et à la composante enquêtes.

7. Le Mécanisme a également établi un bureau de liaison à Damas, pourvu d'un spécialiste des questions politiques, qui est aussi le principal point de contact avec le Gouvernement de la République arabe syrienne et qui fournit des informations actualisées et des recommandations au Groupe de direction s'agissant de questions politiques de fond.

8. Pour donner au Mécanisme les ressources nécessaires à la conduite de l'enquête, six spécialistes, dont des traducteurs, ont été recrutés pour renforcer son équipe à La Haye. Ils ont les compétences nécessaires pour mener une enquête dans les règles de l'art. Le fonds d'affectation spéciale créé pour répondre aux besoins matériels et techniques du Mécanisme a été utilisé à cette fin.

III. Activités du Mécanisme

9. Le Mécanisme a consacré la période initiale de ses travaux, entre le 24 septembre et le 13 novembre 2015, à la mise en place des bureaux de New York et de La Haye. Il ressort de son premier rapport (S/2016/142) que durant cette période, le Mécanisme a recruté du personnel justifiant des compétences et connaissances spécialisées voulues; tenu des réunions de planification et des consultations avec les États Membres; pris des dispositions pour garantir l'intégrité et la confidentialité de ses travaux, y compris la protection des documents, des éléments de preuve et des témoins; commencé à élaborer et mettre en place un système de gestion des dossiers répondant à des normes de sécurité très strictes, applicable à toutes les informations obtenues ou générées par lui; et commencé à se procurer des ressources extrabudgétaires pour appuyer ses activités et répondre à ses besoins matériels et techniques. Le 9 novembre 2015, le Secrétaire général a informé le Conseil de sécurité que le Mécanisme commencerait pleinement ses activités le 13 novembre (S/2015/854).

10. La phase I de l'enquête, qui s'est déroulée du 13 novembre 2015 au 29 février 2016, a été consacrée à la collecte d'informations et à planification pour le traitement des cas. Le 26 novembre 2015, le Mécanisme et l'OIAC ont conclu un mémorandum d'accord sur l'accessibilité, le stockage et le traitement des informations, y compris des preuves, obtenues par la Mission d'établissement des faits et le Mécanisme. Sur la base de ces dispositions, le travail du Mécanisme a commencé en décembre avec un examen et une analyse, par les enquêteurs, des informations et des éléments de preuve obtenus de la Mission d'établissement des faits au sujet des situations pour lesquelles elle avait conclu, à l'issue de son enquête, que des produits chimiques toxiques avaient été utilisés ou probablement utilisés.

11. Le 11 décembre 2015, l'ONU et la République arabe syrienne ont signé un accord sur le statut du Mécanisme en vue d'assurer l'exécution en temps voulu et dans des conditions de sûreté et de sécurité du mandat du Mécanisme en République arabe syrienne. Peu après, le Groupe de direction s'est rendu à Damas pour discuter avec le Gouvernement des modalités de sa coopération à l'appui de l'application de la résolution 2235 (2015) du Conseil de sécurité.

12. Au cours de la phase I, le Groupe de direction a mis au point les méthodes de travail du Mécanisme pour la conduite de ses enquêtes, y compris la collecte de preuves et d'autres renseignements connexes, ainsi que pour l'analyse, la vérification et la corroboration des informations. Il a décidé de la méthodologie à utiliser pour rendre compte de ses conclusions au Conseil de sécurité (voir la section IV ci-après). Sur la base de la méthode établie par le Mécanisme, il a été décidé que neuf situations feraient l'objet d'une enquête approfondie, ce qui a marqué la conclusion de la phase I.

13. La phase II a débuté le 1er mars 2016, lorsque le Mécanisme a commencé ses enquêtes au cas par cas. Il a notamment élaboré un plan d'enquête pour chaque affaire, afin d'orienter l'ensemble des activités et le processus de planification lui-même. Il a continué de recueillir des informations supplémentaires, provenant de sources autres que la Mission d'établissement des faits, et d'interroger des témoins. Plusieurs visites en République arabe syrienne et dans la région ont été organisées à l'appui de l'enquête. À mesure que davantage d'informations étaient recueillies, le Mécanisme est passé à l'analyse, la vérification et la corroboration des informations, tout en continuant de recueillir des données.

14. Pendant toute la durée du mandat du Mécanisme, le Groupe de direction a continué de rechercher activement et de recueillir des informations utiles à l'enquête auprès des États Membres, d'organisations internationales, d'organisations non gouvernementales et d'autres entités et personnes compétentes.

15. Le Groupe de direction a envoyé des demandes officielles d'informations à 28 États Membres, dont les membres du Conseil de sécurité, les pays de la région et d'autres États Membres concernés, et s'est rendu dans 11 d'entre eux, à leur invitation. Les enquêteurs ont aussi effectué des visites techniques. Au cours de ces visites, ainsi que dans ses bureaux à New York et à La Haye, le Mécanisme a reçu des informations et entendu des exposés techniques utiles à l'enquête. Il a examiné et analysé toutes les informations communiquées par la Mission d'établissement des faits, en plus des informations et des documents qu'il avait rassemblés, soit plus de 8 500 pages de documents, les procès-verbaux de plus de 200 auditions, plus de 950 photographies, plus de 450 vidéos obtenues auprès de sources publiques ou fournies par les témoins eux-mêmes, plus de 300 pages d'analyses de médecine légale et plus de 3 500 fichiers contenant des vidéos, des photographies et des enregistrements audio. Étant donné que nombre des informations collectées par le Mécanisme n'étaient disponibles qu'en arabe, il a fallu traduire un grand nombre de documents pour pouvoir les examiner. En outre, les enquêteurs ont enregistré de nombreuses auditions de témoins.

16. Le Groupe de direction n'a cessé d'exhorter le Gouvernement de la République arabe syrienne à répondre rapidement aux demandes d'information présentées par le Mécanisme. Il a maintenu des échanges constants avec le Gouvernement : il s'est rendu à Damas en décembre 2015 et août 2016, a tenu plus de 20 réunions bilatérales avec le Représentant Permanent de la République arabe

syrienne auprès de l'Organisation des Nations Unies, et est resté en contact avec le bureau de liaison du Mécanisme à Damas. En outre, les enquêteurs du Mécanisme ont effectué quatre visites techniques à Damas.

17. Depuis le 24 septembre 2015, le Groupe de direction a tenu plus de 150 réunions bilatérales avec les membres du Conseil de sécurité et d'autres États Membres, à New York et à La Haye. Bien que plusieurs États Membres aient appuyé activement l'enquête menée par le Mécanisme en fournissant des informations et en tenant des réunions d'information technique, le Groupe de direction regrette que certains pays de la région n'aient pas contribué de manière plus substantielle à l'enquête.

IV. Considérations d'ordre méthodologique

18. Le Groupe de direction a noté qu'il n'existait pas de précédent pour la conduite d'enquêtes destinées à identifier ceux ayant perpétré, organisé ou commandité l'utilisation comme armes de produits chimiques ou y ayant participé d'une manière ou d'une autre, contrairement au Mécanisme permettant au Secrétaire général d'enquêter sur les allégations d'emploi d'armes chimiques, biologiques et à toxines, pour lequel existaient des lignes directrices et des procédures (voir A/44/561). Par conséquent, il a adopté des méthodes de travail pour le Mécanisme (voir annexe I).

19. Les déclarations et conclusions figurant dans les rapports de la Mission d'établissement des faits concernant l'utilisation de produits chimiques comme armes ont été le point de départ de l'enquête du Mécanisme sur les neuf situations. En outre, le Mécanisme a examiné les informations et les éléments de preuve fournis par la Mission d'établissement des faits « en l'état », sans évaluer la véracité de ses sources ou toute méthodologie ou méthode de travail adoptée par elle.

20. Le Mécanisme, dont les travaux étaient assujettis aux principes d'impartialité, d'objectivité et d'indépendance, a fonctionné en tant qu'instance d'enquête non judiciaire. Dans le cadre de ses enquêtes, il a cherché à identifier les groupes ayant perpétré, organisé ou commandité l'utilisation comme armes de produits chimiques ou y ayant participé d'une manière ou d'une autre.

21. En plus de rappeler le contexte, les enquêteurs ont cherché à établir, pour chaque situation, les principaux éléments ci-après : a) la date et l'heure des faits; b) les conditions météorologiques; c) le site; d) le type de munitions (les restes et débris, par exemple); e) le mode de dispersion (les moyens et la direction, par exemple); f) les dommages (aux bâtiments notamment) et les effets (sur l'environnement, la flore et la faune, etc.); g) les effets sur la santé. Les principaux éléments ont été établis par le Mécanisme grâce aux plans d'enquête et aux dossiers, et au moyen des informations suivantes : pièces de la Mission d'établissement des faits (examinées et analysées en vue d'en extraire les informations utiles à l'enquête du Mécanisme); entretiens avec des témoins et des déclarations (si possible sous forme d'enregistrements audio et vidéo ou de procès-verbaux); documents, y compris rapports, documents officiels, dossiers médicaux et pièces manuscrites (telles que dessins et liste de noms); images, y compris images-satellite, photographies et vidéos; cartes; graphiques d'information et autres données.

22. Pour chaque situation, le Mécanisme a établi un plan d'enquête permettant d'orienter l'ensemble des activités. Un dossier a également été créé pour chacune, qui contenait des précisions sur les informations et les éléments de preuve recueillis, y compris tous les renseignements pertinents obtenus par la Mission d'établissement des faits. Il contenait aussi une analyse des informations rassemblées et des renseignements sur la méthode suivie et précisait, pour certaines informations données, dans quelle mesure elles étaient corroborées.

23. Le Mécanisme entendait vérifier toutes les informations. Celles-ci ont été soumises à une analyse distincte, en tant que de besoin. Au cas par cas, le Mécanisme a fait appel à quatre instituts médico-légaux et de défense reconnus sur le plan international, qui avaient aidé des organismes des Nations Unies par le passé. Pareille analyse, de par sa nature, prend du temps.

24. Le Groupe de direction a examiné les neuf dossiers, ainsi que les informations et les éléments de preuve que les enquêteurs y avaient insérés. Il a évalué les informations et les éléments de preuve recueillis, notamment leur exactitude, leur crédibilité et leur fiabilité, le degré de corroboration et l'analyse provenant des instituts médico-légaux et de défense, et a établi ses constatations, évaluations et conclusions par consensus. Pour ce faire, il s'est laissé guider par les normes suivantes (voir S/2016/142) :

a) Preuves accablantes (éléments de preuve très convaincants étayant une constatation);

b) Preuves substantielles (éléments de preuve très solides étayant une constatation); ou

c) Preuves suffisantes (éléments de preuve crédibles et fiables permettant au Mécanisme de constater qu'une partie a été impliquée dans l'utilisation de produits chimiques comme armes).

25. Quand le Groupe de direction a conclu que les preuves relatives à une affaire sur laquelle le Mécanisme enquêtait étaient insuffisantes, il a fait rapport en conséquence.

V. Évaluations, constatations et conclusions

26. Conformément aux termes de son mandat, le Mécanisme n'a enquêté que sur les cas dans lesquels la Mission d'établissement des faits avait déterminé que des faits spécifiques survenus en République arabe syrienne avaient impliqué ou avaient probablement impliqué l'utilisation de produits chimiques comme armes, notamment le chlore ou tout autre produit chimique toxique, sachant que la Mission s'est penchée sur les faits survenus dans le pays entre avril 2014 et septembre 2015.

27. La difficulté d'accéder aux sites faisant l'objet d'une enquête en raison de la très grande insécurité qui règne sur le terrain a entravé le travail des enquêteurs du Mécanisme. S'ils avaient pu se rendre sur certains sites, ces derniers auraient été en meilleure position pour confirmer avec précision les sites présentant un intérêt, recueillir des échantillons environnementaux à des fins de comparaison, identifier de nouveaux témoins et évaluer physiquement les matériaux présentant un intérêt (comme les restes et fragments).

28. En dépit de l'autorité conférée au Mécanisme par le Conseil de sécurité dans sa résolution 2235 (2015), en particulier aux termes du paragraphe 7 de celle-ci, les enquêteurs du Mécanisme n'ont pas pu exiger que des informations ou des documents leur soient fournis. Ils se sont donc appuyés sur les renseignements que leur ont communiqués à titre volontaire des sources en possession d'informations pertinentes. De même, ils n'ont interrogé que les personnes qui ont accepté de l'être, volontairement et sans contrepartie financière. Compte tenu du caractère volontaire de la collecte d'informations, les deux parties ont dû convenir des modalités spécifiques de leur coopération, notamment s'agissant de la confidentialité, de la sécurité nationale et de la sécurité des personnes.

29. L'enquête a également pâti des facteurs suivants : a) dans certains cas, les investigations intervenaient plus de deux ans après les faits; b) la chaîne de responsabilité et d'intégrité n'a pas été respectée pour certains des matériaux reçus; c) les sources dont émanaient les informations et les documents étaient secondaires ou tertiaires; d) certains des éléments d'information, notamment ceux décrivant l'ampleur et la nature des faits, se sont révélés trompeurs; e) il a été difficile de trouver des sources indépendantes susceptibles de donner accès aux personnes et aux informations nécessaires.

30. Les constatations sont fondées sur les informations que les enquêteurs du Mécanisme ont recueillies et qu'ils ont pu corroborer au cours d'une période de cinq mois, et elles sont représentatives de la quantité et de la qualité des informations recueillies dans un contexte politique extrêmement sensible caractérisé par la poursuite du conflit en République arabe syrienne. En raison de ces circonstances, l'enquête a été exceptionnellement longue et a nécessité de gros efforts afin d'obtenir la confiance des diverses sources d'information et de trouver des moyens de collaborer avec elles.

31. Le présent rapport expose les évaluations, constatations et conclusions du Groupe de direction à ce jour.

A. Éléments communs aux cas ayant fait l'objet d'une enquête

32. Le Mécanisme a enquêté sur neuf cas, dont huit impliquaient l'utilisation de chlore ou d'un dérivé du chlore comme arme, et le neuvième l'utilisation de moutarde au soufre. Au cours des enquêtes et après avoir examiné tous les éléments recueillis par le Mécanisme, le Groupe de direction a répertorié les facteurs suivants comme étant communs aux huit cas impliquant l'utilisation de chlore, qui sont à lire en parallèle avec les constatations spécifiques concernant chaque cas.

1. Chlore

33. Toutes les parties en République arabe syrienne ont accès au chlore, qui est largement utilisé comme désinfectant et comme agent de purification de l'eau. Le chlore est également utilisé dans divers secteurs industriels, par exemple pour la fabrication de plastique, de pâte à papier et de papier, de pesticides et de produits pharmaceutiques. L'exposition à une haute dose de cette substance dangereuse peut être mortelle. Les enfants, les personnes malades et les personnes âgées sont particulièrement vulnérables en cas d'exposition au chlore. Le chlore ne laisse aucune trace, ou très peu, dans le corps humain. Compte tenu de sa nature corrosive et toxique, il doit être manipulé par des personnes possédant une certaine expertise

et un équipement spécial. Par exemple, afin de transférer du chlore d'un réservoir d'une tonne dans de plus petits conteneurs, une station de remplissage spécialisée est nécessaire.

34. Lorsqu'il est utilisé comme arme, l'efficacité du chlore dépend du type de munition, des méthodes de diffusion, des caractéristiques du terrain et des conditions météorologiques.

35. Dans les cinq cas impliquant l'utilisation de chlore enregistrés en 2014, les faces internes de la munition qui aurait été utilisée avaient un diamètre de 30 à 40 centimètres et une longueur de 155 à 175 centimètres, ce qui permet d'estimer la capacité minimale d'une bouteille à 125 litres. Les bouteilles en question étaient soudées, avaient une soupape centrale et un bouchon de sécurité secondaire sur leur partie supérieure. Elles ne répondaient pas aux normes internationales fixées par l'Organisation internationale de normalisation (ISO), qui disposent que le chlore doit être stocké dans des bouteilles sans soudure et avec une seule soupape. Néanmoins, les normes en vigueur dans certains pays autorisent l'utilisation de ces bouteilles soudées (avec une soupape et un bouchon de sécurité) pour stocker du chlore liquide. Le Groupe de direction note qu'il est aisé de se procurer ces bouteilles, qui sont couramment commercialisées dans le monde.

36. Dans un cas au moins, des informations concernant le fabricant étaient clairement gravées sur la bouteille, assorties de la mention « CL2 » qui indique la présence de chlore, comme le veulent les normes industrielles. Dans la plupart des autres cas, il n'était pas possible de voir ces détails sur les faces internes de la bouteille.

37. Ces bouteilles peuvent être remplies plusieurs fois avec des liquides ou des gaz comprimés, mais un équipement approprié est nécessaire.

38. Dans les trois cas impliquant l'utilisation de chlore survenus en 2015, les informations recueillies par le Mécanisme indiquent que l'enveloppe extérieure des munitions qui auraient été utilisées contenait un certain nombre de cartouches jetables d'hydrochlorofluorocarbones ainsi que des bouteilles en plastique qui auraient contenu du permanganate de potassium. Les bouteilles en plastique étaient attachées aux cartouches au moyen de ruban adhésif, de même que le cordeau détonant.

39. Les cartouches d'hydrochlorofluorocarbones, communément appelées cartouches réfrigérantes, sont largement disponibles étant donné qu'elles sont utilisées pour le remplissage des réfrigérateurs et des climatiseurs. Toutefois, il s'agit de contenants jetables et leur remplissage ou leur conditionnement aux fins d'une autre utilisation nécessiterait une modification technique de la soupape. Pour réaliser cette opération et pouvoir remplir les cartouches avec des liquides ou des gaz comprimés, il faut un certain savoir-faire technique et un équipement spécial.

40. La société Syrian Saudi Chemicals Company (SYSACCO) possédait une usine où étaient produits de la soude caustique et du chlore liquide à 29 kilomètre à l'est de la ville d'Alep. Le Gouvernement a déclaré que le Front el-Nosra avait pris possession de cette installation en août 2012[2]. Il a en outre indiqué que le Front ainsi que certains groupes d'opposition armés avaient les moyens de transporter du

[2] Le 30 mai 2013, le Conseil de sécurité a inscrit le Front el-Nosra sur la liste des groupes terroristes dans sa résolution 1267 (1999).

chlore dans tout le pays, et qu'environ 400 tonnes de chlore se trouvaient dans l'usine au moment où le Front el-Nosra en avait pris possession. Le Mécanisme a obtenu des informations confirmant que les conteneurs de chlore qui se trouvaient dans l'usine avaient été transférés après août 2012. On ne sait ni où ces conteneurs ont été transportés ni comment leur contenu pourrait avoir été utilisé.

41. Le Gouvernement a également évoqué le cas d'une usine de pâte à papier et de papier comprenant une unité de production de chlore située à Deïr el-Zor. Selon le Gouvernement, 59 tonnes d'acide chlorhydrique et trois tonnes d'hypochlorite de sodium étaient stockées dans cette usine lorsque des groupes d'opposition armés s'en sont emparés au cours du premier trimestre de 2012. D'après des informations provenant de sources librement accessibles, les dispositifs de stockage et de sécurité de l'unité sont restés en place après la saisie de l'usine, ce qui laisse à penser que des produits chimiques y sont toujours entreposés.

2. Aéronefs

42. Dans la plupart des cas impliquant l'utilisation de chlore, le Mécanisme avait obtenu des informations, en particulier grâce à des déclarations de témoins, faisant état de la présence d'avions et d'hélicoptères aux environs des lieux et aux alentours du moment où se sont produits les faits faisant l'objet d'une enquête. En fonction du moment où les faits se sont déroulés (pendant la journée ou pendant la nuit), les témoins ont déclaré avoir soit vu soit entendu les appareils. Les enquêteurs du Mécanisme ont à maintes reprises demandé au Gouvernement de leur fournir les plans de vol, les rapports de situation et d'autres documents des Forces armées arabes syriennes, mais à ce jour cette requête reste sans réponse.

43. Le Gouvernement a confirmé aux enquêteurs du Mécanisme qu'il contrôlait l'espace aérien syrien pendant les faits sur lesquels ils enquêtent, tout en ajoutant que, dans les cas où les appareils pourraient avoir volé au-dessous de la zone de couverture des radars, il n'était pas en mesure de confirmer ou d'infirmer la présence d'autres avions opérant dans l'espace aérien syrien. Le Gouvernement a expressément confirmé qu'au moment des faits examinés par le Mécanisme, il contrôlait l'aéroport international d'Alep, qui comprend la base aérienne de Neïrab (province d'Alep), la base aérienne de Hama (province de Hama), l'aéroport international Bassel el-Assad, qui comprend la base aérienne de Hmeïmim (province de Lattaquié) et la base aérienne d'Abou el-Zouhour (province d'Edleb). Toutefois, au cours de la période sur laquelle porte l'enquête, le Gouvernement a perdu le contrôle de six bases aériennes, dont celle de Taftanaz, dans la province d'Edleb, et celles de Minaq, de Koueïris et d'el-Jarrah, dans la province d'Alep. En ce qui concerne en particulier la base aérienne de Taftanaz, le Gouvernement a informé les enquêteurs du Mécanisme que 15 hélicoptères y avaient été abandonnés, dont neuf jugés opérationnels.

44. Il convient de noter que le fonctionnement des appareils en question nécessite une maintenance importante, des compétences techniques spécifiques ainsi que des pièces de rechange et du matériel bien particuliers. En outre, compte tenu de la modernité des moyens de défense aérienne dont disposent les Forces armées arabes syriennes, il est très peu probable qu'un appareil puisse décoller et opérer dans l'ouest de la Syrie sans être repéré ou détruit. Le Gouvernement a été prié de fournir toute information dont il disposerait concernant l'utilisation de ces hélicoptères par des groupes d'opposition armés, mais cette requête reste sans réponse à ce jour. Le

Gouvernement a informé le Mécanisme que certains des groupes d'opposition armés avaient accès à des drones et les avaient utilisés. Toutefois, il est impossible, étant donné leurs dimensions, que les engins qui auraient été employés dans les cas impliquant l'utilisation de chlore aient été lancés au moyen des petits drones dont disposeraient les groupes d'opposition armés.

45. Ayant examiné toutes les informations collectées concernant les faits, les enquêteurs du Mécanisme n'ont trouvé aucun élément prouvant que les groupes d'opposition armés avaient utilisé des hélicoptères au moment et sur les lieux des faits sur lesquels ils ont enquêté.

3. Bombes-barils

46. Des bombes-barils auraient été utilisées dans tous les cas impliquant l'utilisation de chlore. Ces engins improvisés auraient été fabriqués en plaçant des bouteilles ou des cartouches remplies d'explosifs ou de produits chimiques toxiques dans une enveloppe extérieure. Comme ils sont improvisés, la taille et le poids de ces bombes-barils peuvent varier mais en se fondant sur les images des restes et fragments, les experts ont estimé qu'elles devaient peser entre 350 et 400 kilogrammes. En raison de leur capacité de destruction, les bombes-barils créent de larges cratères et on ne retrouve pas de larges fragments de la munition. Les bombes-barils contenant des produits chimiques toxiques provoqueraient quant à elles des cratères plus petits car selon toute probabilité, la charge explosive qu'elles renferment suffirait tout juste à fissurer la coque extérieure pour libérer les produits chimiques, raison pour laquelle on retrouverait des restes et fragments de grandes dimensions. Les enquêteurs du Mécanisme n'ont pas pu trouver la moindre information étayant la théorie selon laquelle des méthodes de propulsion terrestres telles que les roquettes fabriquées à partir d'une bombonne de gaz et des dispositifs improvisés dits « roquettes éléphants » avaient été utilisées pour lancer les engins dont il est question dans les cas faisant l'objet d'une enquête. Dans les cas examinés, aucun enregistrement, échantillon et aucun fragment de munition n'a permis d'étayer l'accusation selon laquelle des roquettes fabriquées à partir d'une bonbonne de gaz auraient été utilisées. En raison de leur poids, on pense que les bombes-barils ne peuvent être lancées qu'à partir d'hélicoptères.

47. Ayant examiné les informations et les éléments de preuve dont il disposait, le Groupe de direction estime que les Forces armées arabes syriennes ont utilisé des armes improvisées lancées à partir d'hélicoptères, et notamment des engins en forme de barils. Le Gouvernement a nié posséder des bombes-barils. Le Groupe de direction note qu'il serait utile de mener de nouvelles études pour comparer les diverses munitions utilisées dans les neuf cas sur lesquelles le Mécanisme a enquêté avec les restes et fragments retrouvés dans le cadre des faits sur lesquels il n'a pas enquêté. Dans les huit cas impliquant l'utilisation de chlore, on n'a pas pu exclure dans certains cas la possibilité que la munition ait touché des produits chimiques toxiques au sol, notamment en raison du fait que les restes et fragments présumés des engins retrouvés sur les sites examinés avaient été enlevés de ces sites avant d'être enregistrés (voir les paragraphes 49-51 ci-dessous).

4. Systèmes d'alerte rapide en place à l'échelon local

48. Le Groupe de direction a noté que, dans la plupart des cas, les populations locales avaient mis en place un système d'alerte rapide pour prévenir de l'approche

d'hélicoptères, en se référant spécifiquement dans certains cas aux supposées attaques menées au moyen de produits chimiques toxiques. Ce système était en partie fondé sur l'interception de communications radio. Il avait été conseillé aux populations locales de se réfugier dans les sous-sols en cas de frappes aériennes et de gagner des sites au vent en cas d'alerte d'attaques aux produits chimiques. Ces dernières auraient causé la panique parmi la population dans certains cas. Dans au moins trois cas, les témoins ont évoqué de fausses alertes d'attaques aux produits chimiques, et dans deux cas ils ont affirmé que des maisons avaient été pillées après l'évacuation. Dans certains cas, la description faite par le personnel chargé du déclenchement du système d'alerte rapide local dans le cadre d'une attaque prétendument menée par hélicoptère était la seule trace attestant du recours à ce moyen de lancement.

5. Documentation fournie par des tiers

49. Le Groupe de direction a constaté que les informations relatives aux cratères et aux munitions provenaient en grande partie soit des premiers intervenants et du personnel médical soit des groupes de surveillance soutenus par la communauté internationale. Il a été difficile de trouver de nouveaux témoins susceptibles de fournir des informations pertinentes qui concernent spécifiquement les faits examinés et qui ne reposent pas sur ces sources.

50. Dans la plupart des cas, l'enregistrement des sites et le prélèvement d'échantillons n'ont pas été effectués immédiatement après les faits, mais quelques jours plus tard seulement. En outre, les restes et fragments de la munition utilisée avaient été démantelés et retirés du site avant d'être consignés. Les enquêteurs du Mécanisme ont donc dû réévaluer le lien entre le site et les restes et fragments, ce qui n'a pas été possible dans certains cas. Ils ont constaté que certains sites avaient été altérés et que tous les cratères ne concordaient pas avec les restes et fragments de la munition concernée. Dans certains cas, il est apparu que des restes provenant d'ailleurs avaient été placés sur les sites présumés.

51. Différents enregistrements montrant des explosions, des sites et des restes et fragments de bombes et prétendument en rapport avec les faits faisant l'objet d'une enquête ont été téléchargés sur des sites de médias sociaux, publiés ou communiqués au Mécanisme. Cependant, après une analyse approfondie de ces documents, qui ont notamment été soumis à des instituts de criminalistique, on a constaté que certains des enregistrements montraient des endroits différents ou des explosions de munitions classiques ou que les faits décrits se produisaient à des moments différents de ceux des faits examinés. Cela a amené les enquêteurs du Mécanisme à se pencher sur de nouveaux sites et de nouveaux restes et fragments.

B. Conclusions particulières

52. Pour chacun des neuf cas faisant l'objet d'une enquête, il a fallu confronter de multiples versions des faits. De plus, dans les cas impliquant l'utilisation de chlore, des allégations faisaient état de multiples sites concernés, et il a fallu enquêter sur l'ensemble de ces sites. Toutefois, les enquêteurs ont constaté que dans de nombreux cas, on ne disposait d'informations suffisantes que pour un seul site alors que concernant les autres sites, les informations disponibles étaient extrêmement rares, à savoir que l'on n'avait aucun renseignement pertinent sur les restes et

fragments retrouvés, sur les cratères provoqués par l'engin ou sur l'impact et les effets de ce dernier.

53. S'agissant des faits survenus à Tell Méniss (le 21 avril 2014), à Sarmin (le 16 mars 2015) et à Marea (le 21 août 2015), le Groupe de direction a recueilli des renseignements suffisants pour tirer une conclusion sur les acteurs impliqués.

Tell Méniss (province d'Edleb), le 21 avril 2014

54. Le Groupe de direction a examiné les informations concernant les deux sites de Tell Méniss touchés le 21 avril 2014. Il dispose de suffisamment d'informations pour conclure que ce qui s'est passé sur le site n° 2 résulte du largage, par un hélicoptère des Forces armées arabes syriennes, d'un engin qui a endommagé la structure d'une maison en parpaings, suivi de la libération d'une substance toxique qui a affecté la population.

55. Cette conclusion se fonde sur les éléments suivants :

- Le Mouvement islamique Ahrar el-Cham et le Front el-Nosra étaient bien implantés aux alentours de Tell Méniss. Selon certaines informations, ils auraient l'un et l'autre contrôlé la ville. Le 21 avril 2014 et pendant un certain temps avant et après cette date, Tell Méniss a régulièrement fait l'objet de tirs d'artillerie et d'attaques aériennes. Ce jour-là, un combat a opposé les forces gouvernementales et des groupes d'opposition armés, ainsi que le Front el-Nosra, autour des deux bases militaires de Wadi Deif et Hamidiyé, toutes deux situées à proximité de Tell Méniss;

- Des témoins ont déclaré que des produits chimiques toxiques s'étaient dégagés après l'explosion d'une bombe-baril larguée d'un avion;

- Ni le Gouvernement ni les groupes d'opposition armés ne démentent l'utilisation de chlore à Tell Méniss le 21 avril 2014;

- Le Gouvernement a déclaré que l'impact (sur le site n° 2) avait été causé par un projectile d'origine terrestre lancé par un groupe d'opposition armé. Cette possibilité n'est pas avérée par les dommages structurels;

- Un seul des deux impacts présumés (celui du site n° 2) a été jugé plausible par le Mécanisme;

- Au moment des faits, le Gouvernement avait perdu le contrôle de six bases aériennes, dont celle de Taftanaz (province d'Edleb). Il a informé le Mécanisme que 15 hélicoptères avaient été abandonnés sur cette base, dont neuf étaient considérés comme opérationnels;

- Le Groupe de direction a examiné toutes les informations recueillies et n'a trouvé aucun élément de preuve attestant que des groupes d'opposition armés présents à Tell Méniss avaient utilisé un hélicoptère au moment et sur les lieux des faits;

- Si le nombre exact de patients n'a pas pu être établi avec certitude, il est évident qu'un grand nombre de personnes a été en contact avec des produits chimiques toxiques.

Sarmin (province d'Edleb), le 16 mars 2015

56. Le Groupe de direction a examiné les informations concernant les deux sites de Sarmin touchés le 16 mars 2015. Il dispose de suffisamment d'informations pour conclure que ce qui s'est passé sur le site n° 2 résulte du largage, par un hélicoptère des Forces armées arabes syriennes, d'un engin qui a frappé une maison, suivi de la libération d'une substance toxique dont tout porte à croire qu'il s'agissait de chlore et qui a coûté la vie aux six occupants de la maison. L'observation des restes de l'engin révèle l'assemblage d'une bombe-baril.

57. Cette conclusion se fonde sur les éléments suivants :

- Des témoins ont confirmé qu'au moins un hélicoptère avait survolé Sarmin au moment des faits;
- Les analyses médico-légales et les expertises confirment les témoignages selon lesquels un engin ou une « bombe-baril » larguée d'un hélicoptère a atteint la cheminée de ventilation d'une maison (site n° 2) alors habitée par une famille de six personnes. Les dommages produits correspondent à l'effet cinétique d'un engin ou d'une bombe-baril largué à une altitude élevée plutôt qu'à l'explosion ou à la détonation d'un explosif brisant;
- Sur plusieurs vidéos filmées sur le site n° 2, on voit des cartouches d'hydrochlorofluorocarbones à l'intérieur de la maison et une substance violette sur le sol;
- Le Gouvernement a indiqué qu'aucun appareil des Forces armées arabes syriennes n'avait volé le 16 mars 2015, mais n'a fourni aucun renseignement à l'appui de cette affirmation. Le Mécanisme a néanmoins obtenu auprès d'autres sources des informations corroborant les témoignages selon lesquels des hélicoptères de l'armée auraient survolé les lieux au moment des faits;
- À l'époque des faits, le Gouvernement avait perdu le contrôle de six bases aériennes, dont celle de Taftanaz (province d'Edleb). Il a informé le Mécanisme que 15 hélicoptères avaient été abandonnés sur celle de Taftanaz, dont neuf étaient considérés comme opérationnels;
- Le Groupe de direction a examiné toutes les informations recueillies et n'a trouvé aucun élément de preuve attestant que des groupes d'opposition armés présents à Sarmin avaient utilisé un hélicoptère au moment et sur les lieux des faits.

Marea (province d'Alep), le 21 août 2015

58. Le Groupe de direction a examiné les informations concernant les faits qui se sont déroulés à Marea le 21 août 2015 et déterminé qu'elles suffisaient à conclure que l'État islamique d'Iraq et du Levant (EIIL)[3] étaient la seule entité à même d'utiliser de l'ypérite au soufre à Marea le 21 août 2015, disposant des capacités et moyens nécessaires et ayant des motifs pour mener une telle opération.

59. Cette conclusion se fonde sur les éléments suivants :

[3] Le 30 mai 2013, dans sa résolution 1267 (1999), le Conseil de sécurité a inscrit l'EIIL sur la liste des groupes terroristes.

- Marea a longtemps été un bastion des groupes d'opposition armés combattant les forces gouvernementales. Le 21 août 2015, l'EIIL a progressé vers l'ouest en direction de Marea;
- Selon plusieurs témoignages et plusieurs autres sources, Marea a été bombardée par une cinquantaine d'obus d'artillerie, dont plusieurs étaient chargés d'ypérite au soufre, tirés depuis des zones situées à l'est ou au sud-est de la localité et contrôlées par l'EIIL;
- À la date donnée et les jours suivants, plusieurs personnes se sont présentées à l'hôpital avec des symptômes typiques de l'exposition à l'ypérite au soufre;
- Le Mécanisme a reçu et analysé beaucoup de photos et de vidéos des munitions utilisées à Marea. Quatre sources ont déclaré que les munitions utilisées étaient des obus d'artillerie de 130 mm. Les photos et les vidéos des munitions montrent qu'un liquide visqueux sombre a été libéré par les obus.

60. En ce qui concerne les faits constatés à Kafr Zeïta (le 18 avril 2014), à Qaminas (le 16 mars 2015) et à Binnich (le 24 mars 2015), le Groupe de direction était sur le point de disposer d'informations suffisantes pour parvenir à une conclusion sur les acteurs concernés. Il recommande que l'enquête se poursuive sur ces trois affaires.

Kafr Zeïta (province de Hama), le 18 avril 2014

61. Le Groupe de direction a examiné les informations et les éléments de preuve se rapportant aux faits survenus à Kafr Zeïta le 18 avril 2014 et établi que les Forces armées arabes syriennes avaient perpétré les frappes. Toutefois, il n'a pas pu attester l'utilisation de bombes-barils, les restes de l'engin en cause ayant été enlevés et ne pouvant, à ce stade, être associés avec certitude au site n° 2.

62. Le Groupe de direction a estimé qu'il fallait enquêter plus avant.

63. Cette évaluation se fonde sur les éléments suivants :

- Le 18 avril 2014, les groupes d'opposition armés et le Front el-Nosra étaient présents à Kafr Zeïta. Cette zone a été visée régulièrement par des tirs d'artillerie et des frappes aériennes des Forces armées arabes syriennes, notamment le 18 avril 2014;
- Le Gouvernement a confirmé que le jour des faits, à l'heure dite, les Forces armées arabes syriennes avaient lancé une attaque aérienne sur un poste d'observation et ciblé une maison qui était utilisée comme dépôt d'engins explosifs. Lorsque la maison a été touchée, un gaz nocif de couleur verte s'est échappé;
- Ni le Gouvernement ni les groupes d'opposition armés ne démentent l'utilisation de chlore à Kafr Zeïta le 18 avril 2014;
- Seules les allégations concernant un des deux sites (le site n° 2) ont été retenues par le Mécanisme, qui n'a toutefois pas pu déterminer si le cratère d'impact correspondait à une bombe-baril ou à d'autres munitions, un obus de mortier par exemple;
- Les restes de munitions qui auraient été utilisées n'ont pas été retrouvés sur les sites indiqués ou à proximité puisqu'ils ont été déplacés. Bien que plusieurs

images de restes se rapportant aux faits du 18 avril 2014 aient été publiées par une source publique, les informations rassemblées en complément n'ont pas permis de confirmer que le site avait bien été frappé.

Qaminas (province d'Edleb), le 16 mars 2015

64. Le Groupe de direction a examiné les informations disponibles au sujet des faits survenus à Qaminas le 16 mars 2015 et a établi qu'un hélicoptère des Forces armées arabes syriennes avait largué un engin ou une bombe-baril à Qaminas.

65. Même si le Groupe de direction a recueilli des renseignements presque suffisants pour pouvoir tirer une conclusion sur les acteurs impliqués, il n'est pas en mesure, à l'heure actuelle, d'établir avec certitude si l'engin ou la bombe-baril contenait des explosifs ou du chlore.

66. Le Groupe de direction a estimé que l'affaire méritait une enquête plus approfondie.

67. Cette évaluation se fonde sur les éléments suivants :

- D'après les déclarations de témoins, un hélicoptère a largué deux engins à la lisière d'une zone militaire à Qaminas. Cependant, un seul site, comme l'ont indiqué trois témoins distincts, a pu être corroboré grâce à une analyse criminalistique des photographies et des images satellite;
- Les débris d'un engin découverts près du cratère d'impact ressemblent à des fragments de bombe-baril qui ont été retrouvés près d'autres lieux d'impact, notamment à Sarmin. Toutefois, il n'a pas été possible, d'après l'analyse des fragments et du cratère, d'établir si l'engin contenait des explosifs ou des substances chimiques toxiques;
- Le Mécanisme a entendu diverses descriptions de l'événement, comme un rejet accidentel de gaz à partir d'un baril tombé d'un véhicule conduit par des membres d'un groupe d'opposition armée ou l'utilisation par des combattants de l'opposition d'un « canon de l'enfer » bourré de substances chimiques à l'encontre d'autres groupes d'opposition armée. Le Mécanisme n'a pas été en mesure d'obtenir des informations crédibles pour appuyer ces différentes hypothèses;
- Le Mécanisme a obtenu des renseignements selon lesquels un hélicoptère avait survolé Qaminas à la date et à l'heure des faits signalés;
- Le Gouvernement a indiqué qu'il n'y avait pas eu de survols le 16 mars 2015 dans le secteur des Forces armées arabes syriennes, sans toutefois fournir d'éléments pour étayer ses dires. Le Mécanisme a néanmoins obtenu des informations à partir d'autres sources, qui corroborent les vols de l'hélicoptère à la date et à l'heure des faits signalés;
- Lorsque les faits se sont produits, le Gouvernement avait perdu le contrôle de six bases aériennes, y compris celle de Taftanaz (province d'Edleb). Il a indiqué au Mécanisme qu'il restait 15 hélicoptères à la base de Taftanaz, dont 9 qui auraient été opérationnels;
- Le Groupe de direction a examiné toutes les informations recueillies et n'a trouvé aucun élément probant d'après lequel des groupes d'opposition armés à

Qaminas auraient manœuvré un hélicoptère au moment et à l'endroit où les faits se sont produits.

Binnich (province d'Edleb), le 24 mars 2015

68. Le Groupe de direction a examiné les informations disponibles au sujet des faits survenus à Binnich le 24 mars 2015 et a été en mesure de confirmer l'existence d'un conteneur avec des traces de chlore ou d'une substance semblable au chlore. Il a reçu un complément d'informations sur les fragments de l'enveloppe extérieure d'un engin compatible avec la fabrication d'une bombe contenant des substances chimiques.

69. Le Groupe de direction avait recueilli des renseignements presque suffisants pour pouvoir tirer une conclusion sur les acteurs impliqués en se fondant sur la chaîne de responsabilité et d'intégrité des fragments retrouvés et sur les conclusions générales de la Mission d'établissement des faits. Cependant, il existe des incohérences dans ce cas précis, y compris en ce qui concerne le lien entre les fragments retrouvés et le(s) lieu(x) d'impact, ainsi que les comptes rendus sur l'explosion et les personnes touchées, qui font l'objet d'une enquête plus poussée.

70. Cette évaluation se fonde sur les éléments suivants :

- D'après les trois témoins, un hélicoptère des Forces armées arabes syriennes a largué un engin ou une « bombe-baril » la nuit, au-dessus de Binnich. Il existe néanmoins des incohérences s'agissant de la date et de l'heure des faits survenus, du(des) lieu(x) d'impact et de la description faite de l'exposition de la population locale à des substances chimiques toxiques;
- En dépit des incohérences et de l'insuffisance d'informations entourant l'affaire, le Mécanisme a été en mesure de corroborer certains éléments clefs, comme des fragments récupérés à Binnich par des agriculteurs qui travaillaient au champ, qui ont été consignés et étayés par la suite. Les fragments retrouvés sur le site n°1 : l'enveloppe extérieure, le conteneur et la bouteille en plastique, sont conformes à la fabrication d'une bombe-baril. Le conteneur et le contenu de la bouteille en plastique ont été analysés dans un laboratoire et le conteneur a révélé des traces de chlore et d'une substance semblable à du chlore. Les laborantins ont également conclu que la bouteille en plastique contenait du permanganate de potassium. La chaîne de responsabilité et d'intégrité a été établie;
- Le Mécanisme n'a pas pu recueillir de renseignements sur l'explosion de l'engin. Il a toutefois reçu des informations sur le lieu d'impact, qui fait l'objet d'une analyse criminalistique.

71. S'agissant des faits survenus à Kafr Zita (11 avril 2014) et à Tamaniaa (les 29 et 30 avril 2014 et 25 et 26 mai 2014), le Groupe de direction a estimé que les informations étaient en contradiction ou insuffisantes pour tirer des conclusions sur les acteurs impliqués et il ne recommande pas d'enquête approfondie dans ces trois cas.

Kafr Zita (province de Hama), le 11 avril 2014

72. Le Groupe de direction a examiné les informations et les éléments de preuve qu'il a recueillis au sujet des faits qui se sont produits à Kafr Zita le 11 avril 2014 et

a établi que les Forces armées arabes syriennes avaient effectué des frappes aériennes dans le secteur, ce jour-là. Au moins une explosion en a résulté.

73. Le Groupe de direction n'a pas été en mesure de confirmer le recours à des bombes-barils car les fragments de l'engin qui aurait été utilisé ont été retirés des lieux et n'ont pas pu être reliés à d'autres sites.

74. Si un nombre important de personnes – jusqu'à 150 – ont été exposées à du chlore, le 11 avril 2014, le Groupe de direction a établi que les informations étaient insuffisantes à l'heure actuelle pour pouvoir tirer des conclusions sur les acteurs impliqués.

75. Cette évaluation se fonde sur les éléments suivants :

- Le 11 avril 2014, le Front Nosra et d'autres groupes d'opposition armée étaient présents à Kafr Zita. Ce secteur était soumis régulièrement à des tirs d'artillerie et à des attaques aériennes de la part des Forces armées arabes syriennes. Ces attaques se sont poursuivies le 11 avril 2014;
- Le Gouvernement a confirmé avoir visé, à la date et au moment des faits signalés, la résidence d'un commandant du Front Nosra qui, d'après les autorités, aurait servi à la fabrication d'engins explosifs improvisés et au stockage de chlore;
- Le Gouvernement et les groupes d'opposition armée se sont accordés pour dire que du chlore avait été utilisé à Kafr Zita le 11 avril 2014;
- Aucun des cinq sites présumés n'a pu être confirmé par le Mécanisme;
- Deux vidéos en accès libre montrent une explosion à Kafr Zita provoquée par un engin largué à partir d'un aéronef. On voit une explosion distincte dans une autre vidéo. Le Mécanisme n'a cependant pas pu établir si la dernière explosion avait été suscitée par un engin largué à partir d'un aéronef ou par des munitions au sol. Les deux explosions, en outre, n'ont pas pu être associées à des attaques au chlore;
- Les débris des munitions qui auraient été utilisées ont été transférés des sites présumés vers d'autres lieux.

Tamaniaa (province d'Edleb), les 29 et 30 avril 2014

76. Le Groupe de direction a établi que les informations étaient insuffisantes pour confirmer ou exclure la possibilité d'une attaque chimique et que les éléments de preuve ne concordaient pas et ne suffisaient pas pour tirer des conclusions quant aux acteurs impliqués.

77. Cette évaluation se fonde sur les éléments suivants :

- Les informations pertinentes au sujet de tous les faits survenus à Tamaniaa demeurent insuffisantes. Aucun mouvement aérien n'a pu être établi par le Mécanisme;
- Il existe des incompatibilités entre les déclarations faites par les témoins, et les descriptions de l'événement sont contradictoires. Certains témoins ont déclaré que des personnes avaient souffert de l'utilisation de chlore comme arme. D'autres ont décrit des frappes aériennes à Tamaniaa en avril ou à la fin du

mois d'avril 2014, tout en déclarant qu'aucune substance chimique n'avait été utilisée lors de ces attaques;

- Les experts estiment que ces faits sont à imputer à une attaque menée à l'aide d'armes classiques.

Tamaniaa (province d'Edleb) les 25 et 26 mai 2014

78. Le Groupe de direction a examiné les informations et les éléments de preuve disponibles au sujet des faits survenus à Tamaniaa les 25 et 26 mai 2014 et a établi qu'ils n'étaient pas suffisants pour pouvoir tirer des conclusions sur les acteurs impliqués et les modalités d'utilisation de substances chimiques comme armes, lors des faits.

79. Cette évaluation se fonde sur les éléments suivants :

- Les informations pertinentes sont insuffisantes au sujet de tous les faits qui se sont produits à Tamaniaa. Aucun mouvement aérien n'a été établi par le Mécanisme;
- Plusieurs témoins ont déclaré que depuis avril 2014, de « fausses » alertes aux armes chimiques avaient été lancées fréquemment, de manière sporadique, et qu'aucune substance chimique n'avait été utilisé comme arme à Tamaniaa;
- D'autres témoins ont déclaré qu'une « bombe-baril » non explosée aurait dégagé du chlore. Les éléments de preuve sont cependant insuffisants pour corroborer ce témoignage.

VI. Observations finales

80. Immédiatement après sa création, le Groupe de direction a constaté une diminution du nombre d'allégations relatives à l'utilisation de substances chimiques comme armes en République arabe syrienne. Ces allégations se sont toutefois poursuivies au cours de son mandat et, notamment, ces derniers temps, au sujet de l'utilisation d'agents chimiques divers, dont certains décrits comme armes chimiques au titre de la Convention sur l'interdiction de la mise au point, de la fabrication, du stockage et de l'emploi des armes chimiques et sur leur destruction.

81. Les allégations relatives à l'utilisation, en République arabe syrienne, d'armes chimiques ou de substances chimiques toxiques comme armes, au titre de la Convention, qui ont été communiquées au Mécanisme par des États Membres, de décembre 2015 à août 2016, comprennent du sarin (13), de la moutarde au soufre (12), de l'agent VX (4), du chlore (41) et d'autres substances chimiques ou agents toxiques (61). D'après ces informations, tant le Gouvernement que d'autres acteurs seraient impliqués dans les faits présumés.

82. Le Groupe de direction se déclare à nouveau fermement persuadé que l'utilisation de substances chimiques comme armes, quelles qu'en soient les circonstances ou les motivations, est tout à fait exécrable. Le Groupe réaffirme sa conviction qu'il est absolument fondamental de tenir pour responsables de leurs actes ceux qui utilisent ou ont l'intention d'utiliser des substances chimiques comme armes.

83. Le Groupe de direction tient à remercier les États Membres, les organisations internationales et d'autres entités de la pleine coopération dont ils ont fait montre à ce jour à l'appui de ses travaux et tout particulièrement de leur généreuse contribution financière.

84. Enfin, le Groupe de direction tient à remercier de leur soutien le Secrétariat et notamment le Bureau des affaires de désarmement et le secrétariat technique de l'OIAC.

Annex I

Methods of work

1. There were no precedents for the investigation into the identification of the perpetrators, organizers, sponsors or those otherwise involved in the use of chemicals as weapons. This is unlike the case for investigating the alleged use of chemical weapons for which there are guidelines and procedures established for use by the Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons (see A/44/561). Consequently, in the absence of a framework to guide its efforts in fulfilling its unprecedented mandate, the Mechanism has been developing operating guidelines and procedures with the aim of identifying those involved in the use of chemicals as weapons in order to ensure that its work adhered to the principles of impartiality, objectivity and independence.

Overview

2. The information obtained by the Organisation for the Prohibition of Chemical Weapons (OPCW) Fact-Finding Mission was reviewed "as is" and the conclusions contained in their reports formed the starting point of the work of the Mechanism. The material collected by the Fact-Finding Mission was reviewed and analysed by the Mechanism with a view to extracting information relevant for the identification of the perpetrators, organizers, sponsors or otherwise involved in the use of toxic chemicals as weapons.

3. The Mechanism's mandate was implemented in two phases: Phase I — information collection and planning for case development, which consisted of reviewing and analysing the Fact-Finding Mission data, mapping of the incidents (i.e., the identification of specific incidents in which the Fact-Finding Mission had carried out an investigation and had determined the use or likely use of chemicals as weapons, screening and prioritization of the incidents (through severity, delivery method and munition, quantity of data and information)) and elaborating an investigation plan and methodology, including evidentiary standards and relevant procedures; Phase II — case investigation, which consisted of in-depth analysis of the cases identified during Phase I and continued until sufficient information was gathered, analysed, assessed and corroborated to allow the Mechanism to present its findings to the Security Council.

Information management

4. The Mechanism took measures to ensure that its personnel complied with the confidentiality and security protections set out in the memorandum of understanding concluded between the Mechanism and the OPCW on 26 November 2015, concerning the provision of access, storage and handling of information. All personnel were also required to enter into individual confidentiality undertakings.

5. In addition, the Mechanism applied the Secretary-General's bulletin on information sensitivity, classification and handling of 12 February 2007 (ST/SGB/2007/6) in relation to the information collected and produced by the Mechanism. Furthermore, relevant sections of the Secretary-General's bulletin on

record-keeping and the management of United Nations archives of 12 February 2007 (ST/SGB/2007/5), concerning the creation, management and disposition of records, have been applied by the Mechanism.

6. The Mechanism adopted standard operating procedures and guidelines on information management, as well as the conduct of interviews; collection of evidence and information, including chain of custody forms; and analysis of information.

Collection of information and evidence

7. In addition to information and evidence obtained by the Fact-Finding Mission, the Mechanism gathered information from the following:

(a) The Government of the Syrian Arab Republic and all parties in the Syrian Arab Republic;

(b) Other Member States of the United Nations;

(c) International organizations, international and national non-governmental organizations, other entities and individuals; and

(d) Open sources.

8. The information and evidence collected by the Mechanism included witness interviews and statements given to other entities (where possible collected as audio and video records or as a transcript); documents including reports, medical records and handwritten material; images including satellite imagery, photographs and videos; infographics and other data. Furthermore, the Mechanism collected forensic analysis, laboratory results and other material such as maps.

Information from the Government of the Syrian Arab Republic

9. At the Mechanism's request, documents and other supporting material such as reports, power point presentations, videos, photos, maps and diagrams were provided by the Government of the Syrian Arab Republic on the nine cases. The Government also facilitated interviews with some of the witnesses. Furthermore, the Mechanism met with representatives of the Government of the Syrian Arab Republic, including members of their armed forces, during its missions to Damascus.

Information from all parties in the Syrian Arab Republic

10. The Mechanism held meetings with armed opposition groups, during which information on the cases under investigation was provided. One group facilitated an interview with one witness. The Mechanism also met with the National Coalition of Syrian Revolution and Opposition Forces. Furthermore, other parties provided documents to the Mechanism.

Information from Member States

11. The Mechanism received case-specific information from 14 Member States. It collected further material to obtain independent confirmation of the information received or used such information to confirm the Mechanism's information or understanding of the cases under investigation.

Information from international organizations, non-governmental organizations, other entities and individuals

12. The Mechanism established a network of contacts in possession of relevant information on the cases under investigation. This included international organizations, non-governmental organizations, the private sector, research organizations, laboratories and institutes, civil society organizations and individuals.

13. This network of contacts provided information and facilitated access to witnesses.

Open sources and social media

14. Extensive material is available on open sources and social media related to the cases under investigation. Such material was mainly in Arabic. The Mechanism reviewed videos and other media files available online allegedly documenting the incidents, including the munition used and the remnants thereof, the delivery method and the impact and effects resulting from the use. Open source and social media material deemed central to the investigation was subjected to forensic analysis.

Compiling of the information

15. Investigation plans were developed for each case to help guide the overall investigation. During the course of the investigation, case files were prepared to document the details of the information and evidence collected, including any relevant information obtained by the Fact-Finding Mission. The case files included the analysis of the information collected and documented the process and amount of corroboration on specific issues. Annexes II to X of the present report are based on the case files prepared during the investigation.

16. In addition to providing the background, the investigation sought to establish for each case the following key elements: (a) date and time; (b) weather conditions; (c) impact location; (d) munition (e.g., remnants); (e) delivery method (e.g., means and direction); (f) damage and effects (e.g., on buildings, environment, flora and fauna); (g) medical effects.

Weather conditions

17. The Mechanism received weather related information for the dates and places under investigation from the World Meteorological Organization (WMO). In providing the information, the WMO stated the following: "The coverage of weather stations across [the Syrian Arab Republic] was very poor during the [periods in question] which makes it extremely difficult to assess weather conditions at the requested locations from observations. One station was close to Kafr Zita […] so data from that site was used where appropriate. [In addition…] short range forecasts from a world-leading high resolution global atmospheric

model have been used […] These forecasts are initiated from our best estimate (analysis) of the state of atmosphere […] Satellite imagery [have also been used] to provide supplementary information, notably for weather descriptions."

18. Furthermore, the WMO has informed the Mechanism that while the humidity values and temperature data provided are thought to be relatively accurate (within 2° Celsius for temperature), the wind direction/speed are not as accurate as they can be subject to significant variability on time scales of minutes. Nevertheless, the values indicated in the annexes are believed to be reasonable as 60 minute averages. The times of the sunrise and sunset were taken from http://www.esrl.noaa.gov/gmd/grad/solcalc/sunrise.html.

Analysis, verification and corroboration of information

Corroboration and analysis

19. The Mechanism aimed to corroborate information. In this connection, identifying circular reporting was important in order to ensure that the corroboration was in fact from separate sources of information.

20. As necessary, information material collected by the Mechanism was subjected to a separate analytical process. On a case-by-case basis, the Mechanism engaged four internationally recognized forensic and defence institutes, which had provided assistance to United Nations bodies in the past. These forensic institutes worked on, among other things, verifying whether videos and photographs had been modified or altered, determining the dates and times of when a video or a photograph was taken and verifying the locations depicted. The defence institutes provided analysis of imagery, munitions-related issues, explosions and modelling of the dispersion of chlorine in the atmosphere. The Mechanism also consulted with a ballistic and explosives expert on the imagery of the points of impact.

Analysis and review

21. As part of the analytical process, an analytical/review team was established to ensure the following: (a) technical adequacy of the information collected; (b) consistency in all the cases under investigation; and (c) identification of patterns emerging from the cases under investigation. During this process, the information received was mapped and entered into a database. Several standard tools such as those used for making projections of information against continuous/discontinuous variables and reconstructive evidence-gathering were used.

Assessment

22. The Leadership Panel carefully reviewed the material submitted by the investigators. They presented the case files, which included the information collected by 10 August 2016. The Panel weighed the information and evidence collected and came to its assessments, findings and conclusions by consensus.

23. The Leadership Panel decided that, in reporting its findings to the Security Council, a sufficient degree of supporting evidence was required; that is, there is evidence of a credible and reliable nature to determine that a party was involved in the use of chemicals as weapons on the date and time of the incident in which the

Fact-Finding Mission determined use or likely use. In so doing, the Panel was guided by the following standards:

(a) Overwhelming evidence (highly convincing evidence to support a finding);

(b) Substantial evidence (very solid evidence to support a finding); or

(c) Sufficient evidence (there is evidence of a credible and reliable nature for the Mechanism to make a finding that a party was involved in the use of chemicals as weapons on the date and time of the incident investigated).

24. Narratives of the incidents and a summary of the information and evidence collected are contained in annexes II to X. In addition, it contains a summary of the findings and concluding assessment.

25. Where the Leadership Panel determined that there was insufficient evidence in relation to an incident investigated by the Mechanism, it has reported accordingly.

Challenges and constraints

26. As was the case with the Fact-Finding missions, the lack of access to the locations under investigation due to the dire security situation on the ground affected the manner in which the Mechanism was able to conduct its investigation. Visits to certain locations would have facilitated the ability of the Mechanism to (a) confirm and access specific locations of interest; (b) collect comparative environmental samples; (c) identify new witnesses; and (d) physically evaluate the material of interest to the Mechanism (e.g., remnants).

27. Other challenges and constraints include the following factors: (a) the time period that had elapsed since the incident (i.e. in some cases, more than two years since the incident); (b) the lack of chain of custody for some of the material received; (c) the source of information and material was of secondary or tertiary nature; (d) some of the information material, including those depicting the size and nature of the incident, were misleading; (e) finding independent sources of information that could provide access to individuals and information material proved difficult; and (f) the impact locations were not preserved and were compromised by the time they were recorded (e.g., the videos and photographs of the impact locations were taken days after the incident and in many cases after the remnants had been removed from the impact location).

Ethical issues and considerations

28. In conducting its investigation and in particular when conducting its interviews, full consideration was given to the privacy and protection of all individuals concerned. All vital information was kept confidential and the identity of witnesses was protected at all times. An identity number, which was assigned to each witness, was used for the processing of data. The master list with the names of the witnesses was kept secure by the Mechanism. Throughout the investigation, the Mechanism made all efforts to respect religious values and norms, national customs and the personal pressures and traumas associated with exposure to conflict.

Annex II

Kafr Zita, 11 April 2014

Findings of the OPCW Fact-Finding Mission in the Syrian Arab Republic

1. The Fact-Finding Mission (FFM) concluded that the information collected constituted “a compelling confirmation that a toxic chemical was used as a weapon, systematically and repeatedly, in the villages of Talm[e]nes, Al-Tamanah, and Kafr Z[i]ta in northern Syria. The descriptions, physical properties, behaviour of the gas, and signs and symptoms resulting from exposure, as well as the response of the patients to the treatment, leads the FFM to conclude, with a high degree of confidence, that chlorine, either pure or in mixture, is the toxic chemical in question.” (S/2015/138, page 24, paragraph 29)

2. “Kafr Zita and its neighbourhood have been subjected to some 17 attacks involving the use of toxic chemicals, with the first attack occurring on the night of 10 April 2014, and the latest incident being reported to the Mission on 30 August 2014. Because of the frequency of these attacks and constantly living in a war zone, the witnesses had essentially lost their sense of the dates and times of the various incidents. Witnesses informed the Mission that all except one of the attacks (which happened between 1800 and 1900 hours on 11 April 2014) occurred at night.” (S/2015/138, page 49, paragraph 5.59)

3. The incident on 11 April 2014 between 1800 and 1900 hours is listed in the FFM as the second attack with toxic chemicals in Kafr Zita, with 12 patients (that includes patients from the first incident on 10 April 2014). (S/2015/138, page 50, Table 6)

The Mechanism’s investigation

Background

4. Kafr Zita (Hama Governorate, Muhradah District) is located 30 km north of Hama, at the administrative border with Idlib District. It is located approximately 8 km west of Morek, which sits at M5 Damascus-Aleppo motorway. Hama city and the Hama Military Airfield are located approximately 30 km south-south-east of Kafr Zita. Muhradah village, at the M56 Damascus-Latakia motorway, as well as the Muhradah dam and hydro-electric power plant located 8 km south.

5. According to a 2004 census, the Kafr Zita sub-district had 39,302 inhabitants. Throughout 2014, high movements of internally displaced persons (IDPs) led to considerably higher numbers of people in the sub-district. A report from the United Nations Office for the Coordination of Humanitarian Affairs indicated that over 61,000 people were considered in need of humanitarian assistance in August 2014, out of which 39,500 were IDPs.

6. The Government of the Syrian Arab Republic stated that it had not been in control of Kafr Zita as of 20 December 2012. The town has since been contested. Throughout 2014, it saw high intensity of conflict, with frequent air strikes, as well as artillery, mortar and rocket fire reported.

7. In 2014, Government presence in Idlib consisted of networks of checkpoints and military installations: one running along the M5 between Ma'arrat al-Nu'man and Khan Sheikhoun, and the other along the M4 connecting Latakia to Idlib city. At the time, the Government of the Syrian Arab Republic was committed to its obligation to remove its chemical weapon stockpiles to Latakia for maritime removal.

8. From spring 2014 onwards, several armed opposition groups concentrated their efforts in Idlib Governorate on cutting Government access to its military bases and Aleppo via the M5. At the time of the first incident, Morek had recently been captured by armed opposition groups, but was contested between the Syrian Arab Armed Forces (SAAF) and armed opposition group.

9. The Government of the Syrian Arab Republic stated that its troops were located 5 km west of Kafr Zita. Reports indicate that in Muhradah and Al-Suqaylabiyah, National Defense Forces (NDFs) had been established. Most of the immediate neighbouring villages of Kafr Zita have been contested at the time.

10. In spring 2014, armed opposition groups and United Nations Security Council designated terrorist organizations,[1] such as the Nusrah Front, and their affiliates were present in Kafr Zita. Some reports indicate that the city had been partly under control of the Islamic State in Iraq and the Levant (ISIL) until 6 January 2014.

11. Armed opposition groups present included Failaq Al-Sham, an alliance of several groups formed in March 2014, and Jaish Al-Izza, an alliance of several smaller groups most of which were linked to the Free Syrian Army (FSA).

12. At the time, alliances of groups were shifting, smaller groups merged into larger ones and blocks started to emerge. The open fighting between different armed opposition groups and United Nations Security Council designated terrorist organizations that characterized the second half of 2014 had not yet begun and most of the groups concentrated on their fight against the Government of the Syrian Arab Republic. However, armed opposition groups were in competition for fighters, resources and influence and often had quite diverging ideologies. Hence, the situation in Kafr Zita, in which many armed opposition groups were present, was volatile.

13. Ahrar ash-Sham was active throughout Hama and Idlib in 2014, with several reported activities near the vicinity of Kafr Zita in April. However, the group stated not to have been present in Kafr Zita in April 2014.

14. At the time of the events, there were two hospitals in Kafr Zita, referred to as the Western hospital (No. 5) and the Eastern hospital (No. 6). The Eastern hospital, according to the FFM (S/1230/2014, page 25, paragraph 5.56), has been destroyed in an attack later in 2014.

[1] On 30 May 2013, Islamic State in Iraq and the Levant (ISIL) and the Nusrah Front were designated as terrorist groups by the Security Council under resolution 1267 (1999).

Narratives

15. The description as provided by the FFM report indicates that on 11 April 2014 between 1800 and 1900 hours, the public was informed about imminent attacks through messages relayed on hand-held radios. Shortly before sunset, a helicopter dropped a barrel bomb containing a cylinder filled with chlorine on Kafr Zita. A gas cloud rose to some 50-60 m high and then settled towards the ground, moving into the direction of the air current. A strong, pungent and chlorine-like smell was noticeable from a significant distance and disappeared after some 30 to 45 minutes. Several Member States provided information supporting this description. Other entities published reports stating that a helicopter or "plane" dropped a barrel purportedly containing chlorine.

16. The Government of the Syrian Arab Republic stated that on 11 April 2014, the house of a Nusrah Front-commander [name redacted], which was used to manufacture explosives and car bombs, was targeted. Upon impact, the house exploded and the odour of chlorine spread through the town, injuring and killing a number of IDPs in Kafr Zita. Six Nusrah Front-affiliated fighters from a neighbouring village were in the house and died in the attack. Several barrels of chlorine had been stored in the house.

17. The Government of the Syrian Arab Republic further stated that the Nusrah Front then tried to blame the use of chlorine on the SAAF. To this end, they fabricated a video that portrayed false evidence. Another source supported the view that the video had been staged. In particular, the Government of the Syrian Arab Republic and that source claimed that a physician who was a witness to the FFM was involved in the fabrication of evidence.

18. The FFM, based on the testimony of another witness, provides an alternative description of the incidents. When a helicopter flew in the direction of Kafr Zita, armed men fired a so-called "hell-cannon" in the direction of the town. Yellow and white smoke emerged, and the witness smelled a bad odour and experienced difficulty breathing. At the hospital, other patients experienced the same symptoms.

19. The events received broad media coverage. Some indicated that the Government of the Syrian Arab Republic had attacked Kafr Zita with toxic chemicals, others quoted the Syrian Arab Republic state television that the Nusrah Front-affiliated fighters had used chlorine in an attack against Kafr Zita.

Date and time

20. The FFM stated that the attack on 11 April 2014 happened between 1800 and 1900 hours, shortly before sunset. The Mechanism reviewed the FFM witness statements that referred to the 11 April 2014 incident. Two witnesses specifically referred to this incident and confirmed the time. This is corroborated with further witness statements. One witness stated that a few minutes after 1800 hours, several barrel bombs were dropped on Kafr Zita.

21. Several sources uploaded videos to the Internet, claiming that these videos show the attack involving "toxic chemicals" in Kafr Zita on 11 April 2014. One of these videos (v01) shows a large explosion shortly before sunset (1903 hours). The end of the evening prayer can be heard. The metadata analysis indicates that this video has indeed been uploaded on 11 April 2014 at 1923 hours local time.

However, the metadata does not contain any indications on when the video has been filmed.

22. A second open source video (v02) published on 11 April 2014 (date not confirmed by forensic analysis) is labelled "Kafr Zita — The moment of the fall of the explosive barrels carrying toxic materials from helicopters". Although the results of a forensic analysis are pending at the time of this report, there are several strong indications that suggest that the second part of this video seems to show the same explosion as v01. In the first part, it shows a helicopter dropping a device and follows it while falling. However, there appears to be a cut between the view of the falling device and the first image of the explosion. Further forensic analysis to assess how much time passed between the two video segments that appear to have been cut together is pending.

23. A third video (v03) shows a different large explosion during daylight. It is labelled as showing an explosive barrel impacting on Kafr Zita. Metadata analysis indicates that it was uploaded on 11 April 2014, 1739 hours local time. Although, again, it cannot be excluded that the video was uploaded on 11 April but filmed before that, these videos provide an indication that several attacks might have happened in Kafr Zita at that date, as indicated by a witness.

24. One witness stated to have seen a "hell-cannon being" fired at a helicopter in the direction of Kafr Zita in March or April 2014.

25. Another source stated that a spontaneous explosion of a car laden with unidentified explosives resulted in the death of six Nusrah Front-affiliated fighters. The explosion had been accompanied by a strong smell of chlorine in the air and several dozen civilians were poisoned, and some of them killed. The Mechanism could not obtain any information that supports this description.

Weather conditions

26. The sunset on 11 April 2014 was at 1903 hours. At around 1800 and 1900 hours, the temperature declined from 23°C to 19°C with the relative humidity of 72 to 76 per cent. The wind came from the north-west (310°) at 1 m/s to 2 m/s.

Impact location

Location #1

27. A witness stated that a barrel bomb fell on "more than one house" on the west side of the Western (No. 5) hospital. The explosion, which looked "different, the smoke was yellowish orange", could be seen from the Western Field Hospital. In order to corroborate the impact location, the Mechanism established the location of that hospital, as a reference point, from four different sources.

28. A witness visited the impact location several days after the incident and recorded the visit. In the video (v04), a GPS Application on a tablet shows the coordinates as N35.372950° E36.589800°, which would match the description as provided by the witness.

29. None of the additional witnesses confirmed or provided additional information with regard to this location. The resolution of the satellite imagery available to the Mechanism for this area was too low to identify any signs of the impact. Despite

repeated requests, the Mechanism was not provided with any military satellite imagery for the date and location in question.

Location #2

30. Through forensic analysis of v01, a potential impact area of the explosion at sunset was determined. The location given by the two witnesses is further west. Hence, the crater at location #1 shown in v04 does not result from the air strike in v01, although the explosion and resulting cloud, as well as the time, resemble the description of the witness.

Location #3

31. In v03, an impact with several detonations in series on a wide area can be seen and heard. A yellowish cloud emanates from the impact. The forensic analysis indicates that the impact occurred in the south-west region of Kafr Zita.

Location #4

32. The Government of the Syrian Arab Republic provided the coordinates of the house of the Nusrah Front-commander targeted on that date (N35.373189° E36.599503°).

33. However, none of the videos seem to show this attack, as the coordinates are neither located in the potential impact areas as determined by the video analysis, nor do they match the account of the witnesses. Comparison of satellite images of the house before and after 11 April 2014 shows damage, probably resulting from an explosion.

Location #5

34. The witness who spoke about the impact of a hell-cannon described the impact location as “close to the big mosque” and showed it on a map (N35.373642° E36.602564°). Publicly available satellite images on 2 May 2014, few weeks after the attack, show a potential crater approximately 25 m from this location.

35. The impact location does not match any of the other locations. It is 200 m next to the Eastern hospital (No. 6).

Munition

36. The determination of the munition was based on witness statements, videos of the explosion and remnants, in addition to available photos.

Location #1

37. According to a witness, the remnants from location #1, together with remnants from other incidents, were collected and stored outside of Kafr Zita. In a video (v04) that was filmed on 23 April 2014, the location is shown, which includes coordinates on a GPS Application on a tablet (N35.354700° E36.584417°). Comparing the reference points seen in the video with a map, the GPS coordinates seem credible.

38. V04 and other open source videos show remnants said to be from location #1. Those remnants had been moved from the actual impact location to another location

at the outskirts of the village. Several videos and pictures show remnants that are from Kafr Zita, however, it remains unclear to which incident, date and location they are linked.

39. The witness stated that the remnants from location #1 included an outer jacket and an inner cylinder. This description matches the remnants seen in v04. The measurements of the remnants are 160 cm length (157 cm inner cylinder) and 60 cm in diameter (40 cm inner cylinder).

40. One journalist also took pictures at the same location 12 days after the attack and published 59 of them. The same remnants can be seen in the pictures, as in the FFM witness' video, and it is likely to have been taken at the same location.

41. No further witnesses identified by the Mechanism could provide information to confirm that the remnants in the pictures had been removed from the crater at location #1. The munition could not be linked to the impact location and crater through image analysis either.

42. One witness stated that the explosion at location #1 was large and people initially thought it was an attack with a conventional munition. "The smoke was yellowish/orange in addition to the dust caused by the explosion." Another witness stated that the explosion at location #1 was "very big" and that it could be heard from one village to another. This witness described the cloud as being 50-60 m high, spreading quickly because of wind coming from the west.

43. A witness said that when the first barrel was dropped about 400 m from where he/she was, it resulted in a massive explosion with yellowish fumes. The witness also stated that these fumes started moving eastward with the wind and smelled like chlorine.

44. Reports from two independent entities state that a helicopter dropped a big container that fell between four houses. Other than the witnesses above, these reports state that they exploded without making the usual sound of an explosion, releasing unusual yellow-orange smelly gas within a circle of 500 m.

Location #2

45. The descriptions by the witnesses resemble the explosion seen in v01. However, two of them had described the location as location #1.

46. The explosion in v01 shows a yellow base of the explosion. According to a forensic examination, the cloud is resulting from the detonation of an "oxygen-deficient military high explosive type (e.g. TNT)" causing a dark cloud. The yellow colour in the base of the cloud is judged to be dust. According to the Mechanism's and independent weapon experts, the explosions seem to result from "advanced military munition with a primary detonation and delayed sub-detonation".

Location #3

47. In v03, an impact with several detonations in series on a wide area can be seen and heard. A yellowish cloud emanates from the impact. The Mechanism's munitions experts, in coherence with external independent experts and research institutes, concluded the impact probably resulted from conventional military munition, potentially combined with sub-munitions. The title and description of the video does not indicate any links to chemicals.

48. The Mechanism could not exclude that the blast shown on the video originated from ground-based explosives.

Location #4

49. The Government of the Syrian Arab Republic has not provided information on the munition used, although this information was sought on numerous occasions. The Mechanism did not receive any information on footage of or information on remnants from this location.

Location #5

50. The witness stated that the munition was delivered by a device called "hell-cannon". A drawing of the munition made by the witness resembles a possible projectile, also described by various open sources. An LPG or propane gas cylinder is repurposed and filled with explosives and shrapnel. Welded to the payload is a metal tube (the tail) about the same circumference as the cannon's muzzle.

51. The Government of the Syrian Arab Republic, in accordance with reports from independent entities and open sources, provided information on armed opposition groups using hell-cannons to launch IEDs allegedly filled with explosives, often fertilizer. However, the expert's assessment is that the munition as described by the witness is extremely unlikely to have been filled with chlorine.

Delivery method

Location #1

52. One witness saw a helicopter drop a device on 11 April 2014 around 1800 hours. Another witness stated that "monitors informed that a helicopter was dropping barrel bombs" and that, looking from a window, the witness had seen a "barrel bomb coming down". The report of another organization that documented the events refers to a helicopter taking off from Hama military airport and at 1800 hours targeting the western area of the village.

53. While there are multiple witness statements regarding a helicopter from different sources, the Mechanism has not been able to independently corroborate by a means other than a witness statement that a helicopter was flying in Kafr Zita between 1900 and 2000 hours.

Location #2

54. V01 showing the detonation around sunset was reviewed for the delivery method. An independent research institute and the Mechanism's munition experts were of the view that "the explosive charges [have been] delivered by dropping from an aircraft". In the video, an object can be seen falling in a rather vertical

angle, just before the detonation, in the direction of the detonation site. In the video, a sound resembling that of a jet fighter can be heard. However, there are many possible explanations for that sound.

55. The Government of the Syrian Arab Republic shared their analysis of v01, stating that it showed an air strike with conventional munition.

56. V02, which seems to show the explosion at location #2 (seen in v01), also shows a helicopter. However, as the video appears to be cut between the images of the helicopter and the explosion, the helicopter cannot be linked to the explosion through this video.

Location #3

57. An independent analysis of v03 indicates that the munitions were delivered by dropping from an aircraft, as indicated in the title of the video. This video is considered not linked to exposure with chlorine.

Location #4

58. The Government of the Syrian Arab Republic, while confirming the attack, did not confirm whether it was undertaken through air strikes or land-based attacks.

Location #5

59. "Hell-cannon" is a name used to describe a class of mortar-like improvised firearms. A number of home-made variants have appeared in the Syrian Arab Republic. When fired, the force of the explosion takes the path of least resistance pushing the projectile towards the target at high velocity. Flight stabilizing fins which are part of the tail ensemble ensure the cylinder does not tumble. It is considered extremely unlikely that the projectile described by the witness would have been launched by hell-cannon.

Unclear location

60. The Mechanism notes that there are two other witnesses interviewed by a different entity who refer to helicopters in Kafr Zita on that day. One of these witnesses was at home at the time of the incident and heard a helicopter hovering at around 1800 hours. A few minutes later the helicopter dropped several barrels specifically on the western part of Kafr Zita. Another witness, who was not in Kafr Zita at the time of the incident, reported that "the nature of the attacks involved air strikes launched by regime warship helicopters that dropped barrel bombs loaded with chlorine which exploded producing yellowish fumes that smelled like chlorine cleanser". Another entity was quoted by international media referring to a "plane" that dropped a barrel containing chlorine.

61. The Government of the Syrian Arab Republic provided information related to land operations. In response to attacks against SAAF positions, the SAAF used firepower by means of cannons against armed opposition groups in several locations, including Kafr Zita, resulting in a number of opposition fighters being killed or injured, in addition to vehicles and equipment destroyed.

62. V02, which seems to show the explosion at location #2, also shows a helicopter. However, as the video appears to be cut between the images of the

helicopter and the explosion, the helicopter cannot be linked to the explosion through this video.

Damage and effects

Location #1

63. The size of the crater depicted in v04 was approximately 200 cm deep and 400 cm wide. Forensic analysis of the crater was inconclusive with regard to determining its origin.

64. The FFM report refers to a video showing the crater of 3.6 m diameter and 1.4 m depth, with minimal damage to buildings in the vicinity and a screen shot was listed as Appendix 21. However, after thorough analysis, the investigation team concluded that this is a picture of a crater in Talmenes and not Kafr Zita.

Location #4

65. A comparison of satellite images before and after the event on 11 April 2014 showed considerable damage, probably resulting from an explosion.

Medical effects

66. Witnesses and other sources indicated that up to 150 patients were treated in the two hospitals on 11 April 2014. Three people died in the aftermath of the events. One hundred patients were treated in the Eastern hospital and 50 in the Western hospital. Several patients were referred to a neighbouring country for further treatment.

67. According to a witness, one person died from exposure to toxic substances. The other two died from other injuries.

68. External research institute conducted a basic simulation of the dispersion of a chlorine plume in Kafr Zita. The model predicted three deaths in a distance of 50 m from the impact location and 120 affected in a distance of 400 m. The Mechanism used this dispersion model at the potential impact locations in Kafr Zita, to assess the effect on the population.

Location #1

69. On satellite images, 30 houses were located within the plume dispersion area (400 m) at location #1. Based on the assumption that an average of four people was in each house close to sunset, the number of 120 people affected might be possible. For this area, 150 patients stands above the expected number of affected people, in particular if it is considered that one witness referred to the location #1 as an uninhabited area.

70. However, it is also possible that more people might have been in the village or in the area. Also, same as two of the three deadly injured people, according to the witnesses, did not die of chlorine exposure; some of the patients might have suffered from other injuries and/or anxiety.

71. The Government of the Syrian Arab Republic and one other source accused armed opposition groups and individuals of fabricating false report on patients. They were “filming and taking photographs of the affected population, including children, with a view to presenting the episode as chemical attack by government

forces.” A local physician was allegedly directly involved in preparing fake footage paid by other Member States to fabricate these claims. There is no evidence to support the statement given above.

Location #4

72. According to the Government of the Syrian Arab Republic, there were injuries and deaths among IDPs, in addition to six Nusrah Front-affiliated fighters. The investigators analysed the effect of the destruction at location #4 considering that toxic chemicals were stored in the building and released with the explosion. Probably the greatest impact would be less than 100 m from the house.

73. It is plausible that people inside the house died and that the neighbouring houses were affected causing exposure to civilians. The investigators estimated that approximately 30 houses would be in this perimeter. A dispersion analysis was not possible due to the lack of information on the kind and amount of toxic substances stored in the house.

Location #5

74. The witness saw yellow and white smoke and smelled a bad odour, as never experienced before. The witness and family members experienced difficulty breathing. In a first interview, the witness mentioned to have seen a three-year-old girl exhibiting laboured breathing, secretions and cyanosis in the hospital. In a second interview, the witness referred only to opposition fighters being treated for other injuries. The Mechanism could not gather additional information to corroborate the witness’ testimony.

The Leadership Panel’s assessment

75. The Leadership Panel examined the existing information and evidence regarding the incident in Kafr Zita on 11 April 2014 and determined that the SAAF executed air strikes in that area on that day. At least one explosion resulted from the airstrike.

76. The Leadership Panel could not confirm the use of barrel bombs because the remnants of the device allegedly used had been removed from the site and could not be linked to any of the impact locations.

77. While a significant number of people — up to 150 — may have been exposed to chlorine on 11 April 2014, the Leadership Panel determined that there was insufficient information at this stage to draw a conclusion on the actors involved.

78. This assessment was based on the following:

- On 11 April 2014, the Nusrah Front and several armed opposition groups were present in Kafr Zita. This area was subject to regular artillery and air-borne attacks by the SAAF. Such attacks were ongoing on 11 April 2014.
- The Government of the Syrian Arab Republic confirmed that it had targeted, on the date and time of the incident, the house of a Nusrah Front-commander, which the Government alleges was used to build improvised explosive devices and store chlorine.

- Both the Government of the Syrian Arab Republic and armed opposition groups concurred that chlorine was used in Kafr Zita on 11 April 2014.
- None of the five alleged impact locations could be confirmed by the Mechanism.
- Two open source videos show an explosion in Kafr Zita caused by a device dropped from an aircraft. Another video shows a separate explosion. The Mechanism could not, however, determine if the latter explosion was caused by a device dropped from an aircraft, or by ground based munitions. Furthermore, the two explosions could not be associated with chlorine-specific attacks.
- The remnants of the munitions allegedly used had been removed from the alleged impact locations to different locations.

Annex III

Kafr Zita, 18 April 2014

Findings of the OPCW Fact-Finding Mission in the Syrian Arab Republic

1. The Fact-Finding Mission (FFM) concluded that the information collected constituted “a compelling confirmation that a toxic chemical was used as a weapon, systematically and repeatedly, in the villages of Talm[e]nes, Al-Tamanah, and Kafr Z[i]ta in northern Syria. The descriptions, physical properties, behaviour of the gas, and signs and symptoms resulting from exposure, as well as the response of the patients to the treatment, leads the FFM to conclude, with a high degree of confidence, that chlorine, either pure or in mixture, is the toxic chemical in question.” (S/2015/138, page 24, paragraph 29)

2. “Kafr Zita and its neighbourhood have been subjected to some 17 attacks involving the use of toxic chemicals, with the first attack occurring on the night of 10 April 2014, and the latest incident being reported to the Mission on 30 August 2014. Because of the frequency of these attacks and constantly living in a war zone, the witnesses had essentially lost their sense of the dates and times of the various incidents. Witnesses informed the Mission that all except one of the attacks (which happened between 18:00 and 19:00 on 11 April 2014) occurred at night.” (S/2015/138, page 49, paragraph 5.59)

3. The incident on 18 April 2014 around 2230 hours is listed in the FFM as the fifth attack with toxic chemicals in Kafr Zita, with 35 patients. (S/2015/138, page 50, Table 6)

The Mechanism’s investigation

Background

4. Kafr Zita (Hama Governorate, Muhradah District) is located 30 km north of Hama, at the administrative border with Idlib District. It is located approximately 8 km west of Morek and M5 Damascus-Aleppo motorway. Hama city and the Hama Military Airfield are located approximately 30 km south-south-east of Kafr Zita. Muhradah village, at the M56 Damascus-Latakia motorway, as well as the Muhradah dam and hydro-electric power plant, are located 8 km south.

5. According to a 2004 census, the Kafr Zita sub-district had 39,302 inhabitants. Throughout 2014, high movements of internally displaced persons (IDPs) led to considerably higher numbers of people in the sub-district. A report from the United Nations Office for the Coordination of Humanitarian Affairs referred to over 61,000 people as considered in need of humanitarian assistance in August 2014, out of which 39,500 were IDP.

6. The Government of the Syrian Arab Republic stated that it was not in control of Kafr Zita as of 20 December 2012. The town has since been contested. Throughout 2014, it experienced a high intensity of conflict, with frequent air strikes, as well as artillery, mortar and rocket fire reported.

7. From spring 2014 onwards, several armed opposition groups concentrated their efforts in Idlib Governorate on attempts to cut Government access to its military bases and Aleppo via the M5. At the time of the second incident, Morek had just been recaptured by the Syrian Arab Armed Forces (SAAF), but was contested between them and armed opposition groups.

8. The Government of the Syrian Arab Republic stated that its troops were located 5 km west of Kafr Zita. Reports indicate that in Muhradah and Al-Suqaylabiyah, National Defense Forces (NDF) had been established. Most of the immediate neighbouring villages of Kafr Zita have been contested at that time.

9. In the first half of 2014, United Nations Security Council designated terrorist organizations,[1] such as the Nusrah Front, and their affiliates were present in Kafr Zita. Some reports indicate that the city had been partly under the control of the Islamic State in Iraq and the Levant (ISIL) until 6 January 2014.

10. Other factions present included Failaq Al-Sham, an alliance of several armed opposition groups formed in March 2014, and Jaish Al-Izza, an alliance of several smaller groups most of which were linked to the Free Syrian Army (FSA).

11. At the time, alliances of groups were shifting, smaller groups merged into larger ones and blocks started to emerge. The open fighting between different armed opposition groups and United Nations Security Council designated terrorist organizations that characterized the second half of 2014 had not yet begun and most of the groups concentrated on their fight against the Government of the Syrian Arab Republic. However, armed opposition groups were in competition for fighters, resources and influence and often had quite diverging ideologies. Hence, the situation in Kafr Zita, in which many groups were present, was volatile.

12. Ahrar ash-Sham was active throughout Hama and Idlib in 2014, with several reported activities near the vicinity of Kafr Zita in April 2014. However, the group stated that it was not present in Kafr Zita around that time.

13. At the time of the events, there were two hospitals in Kafr Zita, referred to as the Western hospital (No. 5) and the Eastern hospital (No. 6).

Narratives

14. The description that emerged from the testimony of witnesses interviewed by the FFM was that on 18 April 2014 around 2230 hours, a helicopter dropped two barrel bombs containing cylinders filled with chlorine.

15. The Government of the Syrian Arab Republic provided a different description of the events on 18 April 2014. The SAAF conducted an air strike against an observation post of the Nusrah Front or an affiliated group in the north-eastern part of the town. Fighters had launched an improvised explosive device from there, at the tip of which a gas cylinder had been attached. After the rocket had been fired, it emitted an odour and a thick, white smoke. The group exploited the situation and produced videos, alleging that SAAF had fired shells with chlorine gas. At the same time, the SAAF also targeted the house of a person affiliated with a specific armed opposition group that was used as depot for explosive devices. When the house

[1] On 30 May 2013, Islamic State in Iraq and the Levant (ISIL) and the Nusrah Front were designated as terrorist groups by the Security Council under resolution 1267 (1999).

exploded, a noxious, green gas was emitted. The opposition, with the help of a local physician, created false evidence that blamed the chemical attack on the SAAF.

16. A different description provided by another source indicated that the Nusrah Front fighters had used mortar shells filled with chlorine. The Mechanism could not obtain information to support this narrative, including on the impact location, munition and the delivery mechanism used.

Date and time

17. Two witnesses stated that on 18 April 2014 at 2245 hours, two barrel bombs fell on Kafr Zita. Another witness stated that the attack happened around 2300 hours.

Weather conditions

18. The sunset on 18 April 2014 was at 1909 hours. The temperature between 2200 and 2300 hours was 19°C to 20°C. The wind varied at 1 m/s.

Impact location

Location #1

19. A witness indicated that one barrel bomb impacted within a 50 m radius of the Eastern (No. 6) hospital. The Mechanism identified the location of the Eastern (No. 6) hospital as the reference point in two videos retrieved from open sources. The location was confirmed by a witness and the Government of the Syrian Arab Republic.

20. No further information is available on the crater at this impact location and it was not possible to corroborate this information.

Location #2

21. A witness stated that one of the two barrels was dropped on the Kafr Zita football field. The day after the incident, the barrel bomb was still in the crater and removed by an "engineering battalion". The Mechanism could not identify any new witnesses who could corroborate this information.

22. On 23 April 2014, a witness went to the football field area where the second barrel bomb had reportedly impacted and registered the coordinates at N35.3731667° E036.5973167°. In a satellite image analysis, an anomaly that looks like a crater can be seen.

Location #3

23. The Government of the Syrian Arab Republic provided the location of the farm targeted by the SAAF at N35.3843222° E36.6145250°.

24. Comparison of open source satellite imagery from before and after the event did not show signs of an impact that occurred in this area. An anomaly that looks like a crater was already present in September 2012.

Location #4

25. The Government of the Syrian Arab Republic provided the location of the house which it had also targeted at N35.3721417° E36.6025000° in front of the Big Mosque.

26. Comparison of open source satellite imagery did not show any significant damage after, compared to before 18 April 2014. However, better pictures of a higher resolution would have been required to confirm. The Mechanism has requested high resolution military imagery, but did not receive any.

Munition

Location #1

27. No information.

Location #2

28. In the footage from the impact location, no remnants can be seen. A witness stated that all remnants had been moved to another location outside of Kafr Zita. That witness provided a video (v01) of the purported remnants filmed at that location. The device consists of an outer jacket of 114 cm in length and 45 cm in diameter and an inner cylinder of the same (114 cm) length and 30 cm in diameter.

29. The title of an open source video (v02) published on 18 April 2014 indicates that it shows an "Engineering Battalion Mohamad" dismantling a barrel bomb filled with chemicals in Kafr Zita at night. According to visual comparison, the remnants resemble those seen in v01.

30. V02 shows an outer barrel with an inner cylinder that appears to have been repainted. A blue detonating cord is wrapped around the opening where the valve had been attached. The valve was removed from the cylinder, but it appears that the cylinder, which had an additional safety plug, did not explode. The rest of the device appears intact. Any gas leakage would, therefore, have been from where the valve was attached.

31. Both the inner cylinder and outer jacket are metallic, which means that it would require at least four metres of detonating cord to breach the walls of both the inner cylinder and the outer jacket. Tape was used to attach the detonation cord to the surface of the inner cylinder.

32. Forensic examination of the video that shows the impact site found that no remnants or remaining fragments can be seen on site, "which suggests the detonation pit is old (>24 hours) when filmed. This fact makes it difficult to assess the size and thereby the cause of the formation of the detonation pit".

33. Appendix 19 of the FFM report (S/2014/138, page 107, Appendix 19) also shows the sketch of an improvised barrel bomb and a screen grab from a video showing a barrel bomb. The picture and sketch show a larger cylinder and smaller containers. Labels added to the pictures indicate that the smaller containers are filled with sulphuric acid. However, there is no connection between the cylinder valve and the sulphuric acid. Accordingly, it does not appear to be an improvised explosive. Furthermore, the cylinder is intact and does not match the remnants shown in other footage from the Kafr Zita on the 18 April 2014 case.

34. Several pictures of remnants are published by an open source in relation to the 18 April incident. The Mechanism could not find additional information to corroborate that the remnants were from the incident of 18 April.

Locations #3 and #4

35. The Government of the Syrian Arab Republic has not provided information on the munition used for targeting both locations. The Mechanism could not obtain any other information on the munition used from other sources.

Delivery method

Location #1

36. A witness indicated that one barrel bomb impacted within a 50 m radius of the Eastern hospital (No. 6). No further information could be found.

Location #2

37. Witnesses said that they heard about an approaching helicopter through a radio system. One witness specifically referred to the approach of a helicopter at 2245 hours. The attack occurred at night and none of the witnesses stated that they had seen a helicopter.

38. While there are witness statements regarding a helicopter, the Mechanism has not been able to independently corroborate that a helicopter was flying in Kafr Zita at 2230 hours.

39. A witness took measurements and recorded a video of the crater said to be from 18 April 2014. The crater was 300 cm in diameter and 100-110cm in depth. An external expert stated that this kind of crater could result from a barrel bomb with a cylinder filled with chlorine dropped from a helicopter at high altitude and hitting the ground orthogonally or somewhat obliquely.

40. Another external ballistics expert stated that the large detonation pit diameter, in combination with the shallow depth, suggested the munition had detonated at the surface or directly beneath the surface. The large diameter and geometry of the detonation pit suggest a large calibre mortar round (120 mm or more) may have hit and detonated at the filmed site. However, it cannot be excluded that other possible munitions, like a barrel bomb or another type of bomb dropped from helicopters or aircraft, created this crater.

Location #3

41. The Government of the Syrian Arab Republic had initially stated that an air strike was directed against this position. As mentioned above, the Mechanism could not obtain any footage showing the impact, and satellite image analysis did not yield any results with regard to signs of an air strike.

Location #4

42. The Government of the Syrian Arab Republic did not specify the delivery method for this location. However, the Government provided general information on operations in the area — as a response to attacks against SAAF positions, firepower “by means of canons” was used in several locations, including Kafr Zita.

As mentioned above, the Mechanism could not obtain any footage showing the impact, and satellite image analysis did not yield any results with regard to signs of an air strike.

Damage and effects

Location #1

43. Unknown.

Location #2

44. Soil samples from the impact crater in the football field were taken by a witness and handed over to two Member States. The Mechanism reviewed the results of the analysis, which indicated the presence of chlorinated compounds.

45. The Mechanism requested a ballistics/explosives expert to analyse the crater images and the expert reported that: "The crater arising is somewhat larger than the practical maximal predicted for [a barrel bomb filled with chemicals] … the inner gas cylinder is quite heavy and pointed it may be expected to penetrate deeper than the predicted value. There may also possibly have been an additional explosive charge in the bomb. If this would be the additional main contributor to the cratering it would be expected to have been of the order of about 2kg of TNT-equivalent. This is judged to be too much if resulting from detonating cord present in the bomb only, but could well be the result of the chlorine gas streaming out violently from the pressure vessel in bomb after it impacted and penetrated into the ground."

Locations #3 and #4

46. Unknown.

General

47. The distance between the locations indicated by different sources leads the Mechanism to consider the possibility that there were more than two targeted places on this date.

48. There are contradictions, insufficient information and tampering with impact sites. Therefore, the Mechanism could not reach a conclusion on this event.

Medical effects

49. The FFM reports of 35 patients in relation to the incident. No death was recorded. A witness stated that approximately 30 people were affected and went to the hospital. Two other witnesses said that there were around 100 people injured in total. One witness specified that tens of people were suffocating from the impact in the football field and people near the second impact place (close to the Eastern hospital) were suffering from shortness of breath and suffocation, among them medical staff in that hospital.

50. Too little information was available on topography, obstacles, locations, population density and characteristics (age, gender, health conditions). Therefore, a simulation of the plume dispersion did not yield tangible results.

The Leadership Panel's assessment

51. The Leadership Panel examined the existing information and evidence regarding the incident in Kafr Zita on 18 April 2014 and determined that the SAAF executed air strikes in that area on that day. However, the Leadership Panel could not confirm the use of barrel bombs because the remnants of the device allegedly used had been removed and could not, at this stage, be linked with certainty to impact location #2.

52. The Leadership Panel determined that this case merits further investigation.

53. This assessment was based on the following:

- On 18 April 2014, armed opposition groups and the Nusrah Front, were present in Kafr Zita. This area was subject to regular artillery and air-borne attacks by the SAAF, some of which took place on 18 April 2014.
- The Government of the Syrian Arab Republic has confirmed that on the date and time of the incident, the SAAF conducted an airstrike on an observation post and targeted a house that was used as depot for explosive devices. When the house was struck, a noxious, green gas was emitted.
- Both the Government of the Syrian Arab Republic and armed opposition groups do not deny that chlorine was used in Kafr Zita on 18 April 2014.
- Only one impact site (location #2) has been confirmed by the Mechanism. However, the Mechanism could not determine whether the impact crater was caused by a barrel bomb or a different munition, such as a mortar round.
- The remnants of the munitions allegedly used were not found at or near the alleged impact locations, as they were removed and brought to a different location. While several pictures of remnants are published by an open source in relation to the 18 April incident, the additional information on the remnants has not been to corroborate the impact location.

Annex IV

Talmenes, 21 April 2014

Findings of the OPCW Fact-Finding Mission in the Syrian Arab Republic

1. The Fact-Finding Mission (FFM) concluded that the information collected constituted “a compelling confirmation that a toxic chemical was used as a weapon, systematically and repeatedly, in the villages of Talm[e]nes, Al-Tamanah, and Kafr Z[i]ta in northern Syria. The descriptions, physical properties, behaviour of the gas, and signs and symptoms resulting from exposure, as well as the response of the patients to the treatment, leads the FFM to conclude, with a high degree of confidence, that chlorine, either pure or in mixture, is the toxic chemical in question.” (S/2015/138, page 24, paragraph 29)

2. “Talmenes village was attacked with toxic chemicals on two separate occasions, first on 21 April 2014 and again on 24 April 2014.” (S/2015/138, page 35, paragraph 5.6)

The Mechanism’s Investigation

Background

3. Talmenes (Idlib Governorate, Ma'arrat al-Nu'man District) is located 5 km east of the district capital Ma'arrat al-Nu'man, on one of two highways that connect the district capital with villages to the east, including Abu al-Dhuhur and the nearby Airbase.

4. According to a 2004 census, Ma'arrat al-Numan District had 58,008 inhabitants, 11,359 of which lived in Talmenes. In 2014, according to the FFM report, around 20,000 people were living in the town, which included several thousand internally displaced persons (IDPs) from other places. According to a report of the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), in August 2014 over 65,500 people were in need of humanitarian assistance in the District, including 23,000 IDP.

5. The Nusrah Front[1] and Ahrar ash-Sham were reported to have had a heavy presence around Talmenes and involved in frequent clashes with the Syrian Arab Armed Forces (SAAF). Ahrar ash-Sham claimed that they and Firqa 13 controlled Talmenes, while others claimed that the Nusrah Front had been in control. Failaq al-Sham had presence in the area, and several other armed opposition groups may also have been present, including Suqour al-Sham.

6. Several sources, including the Government of the Syrian Arab Republic, stated that the Islamic State in Iraq and the Levant (ISIL) had largely retreated from Idlib by March 2014. According to this information, ISIL had not been present in Talmenes at the end of April 2014 and their next position was over 30 km away.

[1] On 30 May 2013, Islamic State in Iraq and the Levant (ISIL) and the Nusrah Front were designated as terrorist groups by the Security Council under resolution 1267 (1999).

7. On 5 March 2014, armed opposition groups launched an offensive in the area. The frontline lay to the west of Talmenes, between the village and the SAAF military base at Wadi Deif; armed opposition groups effectively controlled the territory east of the M5 motorway. By 4 April 2014, armed opposition groups had succeeded in cutting off supply lines to the two SAAF bases of Wadi Deif and Al-Hamadiyah for the second time that year, and laid siege to these bases. The Government of the Syrian Arab Republic stated that Wadi Deif had been completely surrounded at the time.

8. In April 2014, there were contradicting witness statements about the situation within Talmenes. Some witnesses indicated that the village experienced daily attacks, while others stated that the village had largely been spared. Media and open sources have very few references to attacks in Talmenes. However, there were many reports of clashes in nearby Ma’arrat al-Nu’man.

9. It is indicated in the FFM report that the Al-Siddiq Hospital in Talmenes had very limited resources and facilities, offering only basic medical aid. The more severe cases were transferred to hospitals in Bab al-Hawa and Saraqeb.

Narratives

10. The FFM report (S/2015/138) stated that on 21 April 2014, between 1030 and 1045 hours, two “barrel bombs” were dropped on the village in the neighbourhood around the “big mosque”. They impacted on two residential properties. The people from the neighbourhood sought refuge from the air strike at an olive grove to the east of the village. A honey-wax-to-yellow coloured gas cloud rose from the impact of one of the bombs to a height of some 50-75 m. It was very dense and the smell of the released gas was pungent, irritating and “of chlorine”. This cloud settled along with the wind towards the east at a height of some 1-1.5 m above the ground and covered the main escape route to the east. Approximately 200 people were affected and three people died.

11. The Government of the Syrian Arab Republic confirmed that there was an incident in Talmenes on 21 April 2014. According to their description, an armed opposition group fired a projectile from Ma’ar Shamarin (south of Talmenes) that fell in the centre of the village, close to a residential house which is one of the residential properties mentioned in paragraph 10 above. The impact caused substantial damage and two people died. The Government further said that armed opposition group used this incident to accuse the Syrian Arab Army (SAA) to have fired a projectile armed with chlorine gas. This description did not include any information on the use of chlorine gas or affected people. One witness said to have heard the explosion and smelled an odour like “rotten eggs”, but did not see any injured people.

12. Another source provided an assessment indicating that an ISIL-firing position for an unguided missile launcher in the area experienced a spontaneous detonation in the course of launching of a live round, releasing an unidentified toxic gas. The explosion allegedly resulted in the death of the missile launcher’s operating personnel, the “intoxication” of 83 civilians and the death of livestock. The Mechanism could not obtain any additional information to support this allegation, or even ISIL presence at an operational distance.

Date and time

13. A video (v01), provided by a witness, includes eyewitness statements. One of the individuals in the video stated that an "air strike" took place on Monday, 21 April 2014, at around 1100 hours and both munitions landed within 200 m of the "big mosque". According to a forensic examination, the metadata indicated that the video was originally captured on 23 April 2014, but also noted that metadata can be altered. The Government of the Syrian Arab Republic confirmed that an incident occurred on 21 April 2014, but did not specify the time.

14. On 25 April 2014, an international newspaper published an article about the attack that occurred in Talmenes on 21 April 2014 based on its own investigations.

Weather conditions

15. On 21 April 2014, between 1000 and 1100 hours, the wind in Talmenes was blowing from west to east (250°-270°) at 3 m/s. The temperature was around 19°C to 21°C, with a relative humidity of 74 to 77 per cent.

Impact location

16. According to a witness, the "air strike" hit approximately 200 m from the big mosque. It is unclear whether this testimony refers specifically to the first or the second impact location.

Location #1

17. Two videos handed over by a witness (v02, v03) show an impact site in a courtyard. In one of the videos, a tablet is shown displaying a GPS application with the coordinates N35.6408333° E36.7426167°, approximately 140 m north-east of the mosque.

Location #2

18. The same videos (v02, v03) also show the impact location at a house. The coordinates displayed on the tablet are N35.6405500° E36.7418833°, which is approximately 75 m north-north-east of the mosque and approximately 75 m south-west-west of location #1.

19. Metadata of the above-mentioned videos do not contain GPS coordinates. Visual comparison of images and satellite pictures carried out by an external forensic institute strongly support that the GPS coordinates displayed in the videos are indeed the sites depicted in it (error 4-8 m). However, they caution, satellite images in higher resolution or other reference images could corroborate the findings, but could also theoretically give a different outcome.

20. The Government of the Syrian Arab Republic provided the name of the owner of the house that had been targeted in the attack by armed opposition groups that they described. The name corresponds to the name of the owner of the house at location #2. The Government had stated that this person had died in the attack; however, this person was interviewed by the FFM several months after the attack.

Munition

21. The FFM report had quoted witnesses, describing the sound of the falling munition as “whistling”. Upon impact, a witness heard a muted, distinct sound, as if there was no explosion or one with very low impact.

Location #1

22. V02 and v03, taken two days after impact, show a crater in a backyard, but no remnants. A person is seen taking measurements of the crater (300 cm in diameter and 100 cm in depth), as referred to in the FFM report (S/2015/138).

23. A forensic examination of v02 and v03 concluded that: “[The] detonation site [is] questionable in terms of showing an alleged site for a barrel bomb strike with toxic chemicals.” A barrel bomb without a large explosive charge would not penetrate the hard soil to the extent seen. The expert analysis further excludes that a barrel bomb with explosives or other munition has been used, as no traces of shrapnel hits are visible in the surrounding walls and a barrel bomb with corresponding explosive content would cause surrounding walls to collapse. A mortar round, artillery shell or a bomb may have caused a detonation pit of similar size, but there would, most likely, also be traces of shrapnel hits in the surrounding walls and partially or fully collapsed walls due to the damage effect caused by the detonation.

24. According to the forensic expert analysis, the crater (“pit”) in v02 and v03 is caused by a detonation, but the origin of the detonation is probably an explosive charge of 5 to 10 kg TNT-equivalent buried in the ground.

25. A video (v04) by local media shows the same courtyard and crater. There appears to be a cylinder inside containing the deformed remains of the outer jacket of a “barrel bomb”, which is lying next to a crater in the courtyard. Forensic examination and image comparison strongly supported that this video showed the same backyard with a crater (location #1) as v02 and v03. Dead animals are seen next to the crater. Metadata of V04 include timestamps that indicate 20 April 2014 as the creation date, one day before the incident. It is noted, that metadata depends on the settings of the recording device used and can be altered.

26. The analysis of v04 did not change the analysis of the crater above. The forensic report further stated that the remnants seen in v04 are not likely the carrier of the explosives that caused the crater (“pit”), since the device would have fragmented at the top and sides dispersing into smaller pieces, like the remnants in v04. The munition would only have carried a small amount of explosives and could not have caused a crater of this size. In addition, the bodies of the dead animals seen in v04 look clean and intact, making it highly unlikely that they were in the backyard or at close vicinity when the device causing the crater detonated.

27. Another video (v05) provided a witness depicting the same courtyard, but had to be disregarded because it had signs of heavy editing.

28. As a result of these inconsistencies, location #1 was disregarded for further investigation.

Location #2

29. V02 shows the remnants of a barrel bomb that impacted with the outside kitchen structure of a house. The remnants of the outer jacket are deformed. The remains of an inner cylinder, which has been split at the bottom, can be seen lying adjacent to the remnants of the outer jacket. This split is considered to be caused by either a kinetic or explosive force. The measurements of the inner cylinder are approximately 100 cm in length and 40 cm in diameter. The inner cylinder has a main valve at the centre on top and a safety valve, also on top, but offset from the centre. The main valve is broken off. Given that v02 has been taken two days after the incident, it is possible that the remnants may have been moved from the initial point of impact.

30. Samples taken two days after the event at location #2 were provided to an international newspaper. The results of a sample analysis have been published on 29 April 2014, stating that soil samples from Kafr Zita and Talmenes “were found by a chemical warfare expert to contain traces of chlorine and ammonia”. A witness indicated that the samples were analysed by an independent expert, however, the details of the analysis and the chain of custody for these samples have not been established.

31. Another source had collected samples “in Talmenes at the end of April”. This source shared its analysis results, stating that chlorinated compounds, as well as traces of TNT, had been found in the soil and gravel. However, the source cautioned that it had no scientific evidence of the use of chlorine.

32. Another witness mentioned the presence of a likely foreign non-governmental organization which also took samples. The Mechanism did not have direct access to any of the samples.

33. The Government of the Syrian Arab Republic stated that the munition was launched from a land-based delivery system. The munition did not contain chemicals. The Government provided a picture of the type of munition supposedly used at location #2. The munition shown in the photograph has a number of significant differences as compared with the remnants seen in the other pictures and videos related to location #2. That munition is rocket-propelled, with at least eight fins. No remnants of this kind were documented at the site.

Delivery Method

34. Three witnesses stated to have seen a helicopter approaching Talmenes on 21 April 2014, between 1000 and 1100 hours. They said that the helicopter carried munitions on external platforms, which they described as “wings”.

35. In a video (v06) provided by a witness, a person states to have seen an aircraft flying right over the minaret of the mosque. First, it turned east, but then, suddenly, it attacked. This was followed by an explosion which was not very strong.

36. In the same video another person said to have seen an aircraft right over the minaret of the mosque dropping a bomb.

37. Another witness stated to have heard an aircraft at around 1030 hours and saw a helicopter flying over the village. A detonation occurred approximately 30 minutes later and a cloud of yellow smoke emerged, causing panic among the population.

38. Other sources provided their assessment that overflights on 21 April 2014 occurred. There are indications that a helicopter took off from Hama airbase at around 1030 hours, was spotted flying over several villages on the way to Talmenes and allegedly dropped two devices over Talmenes at around 1100 hours.

39. The Government of the Syrian Arab Republic stated that the impact was caused by a land-based projectile launched by an armed opposition group from the vicinity of Ma’ar Shamarin, which is approximately 3 km from the point of impact.

Damage and effects

40. Three witnesses described a 50 to 75-m high yellowish cloud, which was “shaped like a tree”. This cloud settled at a height of some 1 to 1.5 m above the ground, over 200 m towards the east in the direction of the wind. People were affected as far as 1 to 1.5 km downwind.

41. According to the FFM report, all witnesses described the smell as pungent, irritating and “of chlorine”, or similar to household cleaning agents, but much more intense.

Location #2

42. The videos from this impact location (v02) show a lot of destruction and damage to the structure of the house. The munition is understood to have impacted a concrete block building and resulted in extensive damage to the structure. Large quantities of rubble and other building debris are visible. As a result, there is not a clear view of the crater; however, a crater-like structure is visible. The video shows yellowing leaves on the trees and dead leaves on the ground.

43. The forensic analysis of the destruction at location #2 indicates that it is possible that the structural damage to the building could have been caused by the detonation of a barrel bomb. The large size of the remnants, they argue, would indicate that either the device contained explosives that did not detonate, or that it only contained a small amount of explosives.

44. The rocket-propelled munition type indicated by the Government of the Syrian Arab Republic is, according to munition experts, almost certainly a conventional high-explosive type. Such an amount of explosives, estimated to be at least 200 kg, would have totally destroyed the house at location #2 and possibly a number of surrounding buildings. The damage seen in the available pictures and footage at location #2 is inconsistent with this assessment.

45. One witness referred to animals that had died when the barrel bomb hit at location #2. Another witness reported that the pepper plants in the garden turned yellow and half of them dried out.

Medical effects

46. A witness stated that 200 people had been affected by the use of chemicals, many of whom were transferred to other hospitals. Another witness produced a list of 133 patients registered at Talmenes Hospital on 21 April 2014, based on the information of another witness, and also provided four photographs of severely affected patients. The number of injured people in Talmenes was confirmed by one other source. Another witness confirmed that 150 patients from Talmenes had been received at Jarjanaz Hospital that day.

47. V06 concludes with chaotic scenes in what appears to be Talmenes Hospital. It includes interviews with people who were identified as hospital staff. One of them stated that the number of casualties from 21 April 2014 went up to 400, although the timeframe is unclear.

48. V06 also includes testimonies of those who lived in the two houses that were impacted (locations #1 and #2). Family members reported suffering from choking and heavy coughing, unconsciousness and vomiting blood. One mother described her skin irritation from touching her affected daughter. A young boy had blood and foam coming from the mouth.

49. Three persons are reported to have died after referral to other hospitals in a neighbouring country. The "death certificate" of one of the victims at location #2, issued on 25 April 2014, has been obtained by the Mechanism. This document, however, does not include the cause of death. The autopsy report does not provide the cause of death either.

50. People used the usual escape route in case of air strikes, eastward into a low-lying olive ground. The wind was blowing from west to east with 3 m/s; according to the data from the World Meteorological Organization (WMO), the direction of the dispersion of the plume is credible. Two external sources provided their results of a chlorine dispersion plume analysis, stating that it was feasible that a chlorine barrel bomb could have affected 200 people, most of them mildly.

51. The Government of the Syrian Arab Republic indicated that the main impact of the explosion was the destruction of a structure at location #2, which killed the owner (name provided) and his child. However, a witness interviewed by the FFM later identified himself as this person (i.e., the owner of the house and father of the child that died in the attack).

52. The launch of a projectile from the ground would not explain the 200 to 300 victims suffering from chlorine exposure. The Government of the Syrian Arab Republic stated that it believed the number of victims was incorrect. According to a witness, armed opposition fighters spread the information about the use of chemicals after the explosion, causing panic among the population. The same people also provided face masks to people and told them to leave the village. Despite a smell of "rotten eggs", the witness did not feel any symptoms and did not see any injured people; just those in panic. The witness attempted to enter the hospital, but was denied access. The same witness stated that people who were referred to other hospitals came back to town two days later, with no visible signs of injuries.

53. The description of the effect on the population — who were evacuated from the town after an air strike and caught up in a toxic plume — is consistent with a

plume dispersion analysis carried out by two Member States and the weather information received by WMO. While the exact number of patients could not be definitively established, it is obvious that large numbers of people were affected by toxic chemicals. Several sources shared their analysis of soil samples, which indicated the presence of chlorinated compounds.

54. The structural damage at location #2 could result from the detonation of a barrel bomb, but not from a conventional high-explosive type munition. The remnants documented at the location resemble those of barrel bombs, with remnants of an inner cylinder and an outer jacket. No remnants of a rocket-propelled munition were documented at the site. Witness statements provide a clear link between an explosion, the smell of chlorine, a cloud and the effect on the population.

55. Witnesses and other sources provided information indicating that helicopter(s) were present; and some said that the helicopters delivered the munition. Only one witness seems to have actually seen a device falling. The testimony of other witnesses and persons interviewed in videos that were provided to the Mechanism differ in their description of the time lapse between observing the "aircraft" and the explosion.

The Leadership Panel's assessment

56. The Leadership Panel examined the existing information regarding the two impact locations in Talmenes on 21 April 2014. There is sufficient information for the Leadership Panel to conclude that the incident at impact location #2 was caused by a SAAF helicopter dropping a device causing damage to the structure of a concrete block building house and was followed by the release of a toxic substance which affected the population.

57. This conclusion was based on the following:

- Ahrar ash-Sham and the Nusrah Front had heavy presence around Talmenes. Both were said to have been in control of the town. Talmenes was subject to regular artillery and air force attacks around and on 21 April 2014. On that day there was an ongoing battle between Government forces and armed opposition groups, as well as the Nusrah Front around the two military bases at Wadi Deif and Al-Hamidiyah, both of which are in close proximity of Talmenes.
- Witnesses stated that the release of toxic chemicals followed the explosion of a barrel bomb dropped from an aircraft.
- Both the Government of Syrian Arab Republic and the armed opposition groups do not deny that chlorine was used in Talmenes on 21 April 2014.
- The Government of the Syrian Arab Republic stated that the impact (location #2) was caused by a land-based projectile launched by an armed opposition group. The structural damage was not found to be consistent with this.
- Only one of the alleged impact sites (location #2) has been found plausible by the Mechanism.
- At the time when the incident occurred, the Government of the Syrian Arab Republic had lost control of six airbases, including Taftanaz airbase (Idlib Governorate). The Government informed the Mechanism that 15 helicopters

were left behind of at Taftanaz airbase, nine of which were deemed operational.

- The Leadership Panel reviewed all the information gathered and found no evidence that armed opposition groups in Talmenes was operating a helicopter at the time and location of the incident.
- While the exact number of patients could not be definitively established, it is obvious that large numbers of people were affected by toxic chemicals.

Annex V

Al-Tamanah, 29-30 April 2014

Findings of the OPCW Fact-Finding Mission in the Syrian Arab Republic

1. The OPCW Fact-Finding Mission (FFM) concluded that the information collected constituted "a compelling confirmation that a toxic chemical was used as a weapon, systematically and repeatedly, in the villages of Talm[e]nes, Al-Tamanah, and Kafr Z[i]ta in northern Syria. The descriptions, physical properties, behaviour of the gas, and signs and symptoms resulting from exposure, as well as the response of the patients to the treatment, leads the FFM to conclude, with a high degree of confidence, that chlorine, either pure or in mixture, is the toxic chemical in question". (S/2015/138, page 24, paragraph 29)

2. "The dates recounted are 12, 18, and 30 April 2014, and 22 and 25 May 2014. All attacks, except the one of 22 May 2014, occurred at night. These attacks resulted in more than 150 casualties, and eight of the most severely affected, mostly women and children, died from exposure to lethal doses of the toxic chemical." (S/2015/138, page 20, paragraph 10)

3. Among the five dates the witnesses recalled was an incident in the night from 29 to 30 April, resulting in 35 casualties. (S/2015/138, Table 4 on page 43)

The Mechanism's Investigation

Background

4. Al-Tamanah (Idlib Governorate, Ma'arrat al-Nu'man District) is located less than 9 km east of the M5 Damascus-Aleppo motorway, on the section between the cities of Hama and Idlib. The FFM reported that, in 2014, approximately 20,000 inhabitants lived in the vicinity of Al-Tamanah, as compared to 7,385 in town and 29,144 in the sub-district in the 2004 census. This included 5,000 to 10,000 internally displaced persons (IDPs). According to a report from the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), in August 2014, 5,500 IDPs were in need of humanitarian assistance in the Al-Tamanah sub-district.

5. At the time of the incidents, Al-Tamanah found itself in immediate proximity to the front line. While several armed opposition groups operated from the vicinity of Al-Tamanah, the Government of the Syrian Arab Republic held checkpoints and bases along the M5 motorway and Khan Shaykhun in the west of Al-Tamanah.

6. The first half of 2014 in Idlib saw clashes between the Government of the Syrian Arab Republic and armed opposition groups around the M5. The armed opposition groups were aiming at — and partly succeeding in — opening their access to Idlib city and cutting Government supply to their military bases. Morek (approximately 10 km to the south-south-west of Al-Tamanah) had been captured by armed opposition group in February 2014, since then been contested and reportedly recaptured by Government forces on 14 April 2014.

7. In March and April 2014, armed opposition group operations concentrated on capturing checkpoints along the M5 between Morek, Khan Shaykhun and Ma'arrat

al-Nu'man. It seems that different armed opposition groups were at that time joining forces and divided "responsibility" of checkpoints among them. The Government of the Syrian Arab Republic sought to maintain M5 access, while also establishing alternative routes to Aleppo and Idlib city.

8. In spring 2014, Al-Tamanah was used as a "collective operational base" by several armed opposition groups. United Nations Security Council designated terrorist organizations,[1] such as the Nusrah Front, and those affiliated with them were also present. Witnesses also referred to the presence of the Islamic State in Iraq and the Levant (ISIL) in Al-Tamanah; however, following clashes with the Nusrah Front and armed opposition groups, ISIL had largely retreated from Idlib in March 2014.

9. Several other armed opposition groups had presence and operations in the area, however, the period was characterized by a high volatility of conflict dynamics, armed opposition group locations and alliances, as well as spheres of influence.

10. One of the more influential armed opposition groups was reportedly the Idlib Military Council, which formed part of the Jabhat Thuwar Suriyya since December 2013. There are contradicting statements regarding the presence of other armed opposition groups at the time of the incidents. While some sources report that Jaish Al-Izza, an alliance of several groups formed in 2014, was temporarily headquartered in Al-Tamanah, other sources did not confirm this. Witnesses indicated that Ahrar ash-Sham had presence there as well, but its representatives did not confirm this.

11. Two health facilities in Al-Tamanah have been mentioned by witnesses in relation to the incidents under investigation: The Hanin Medical Charity/Point and the 9th Medical Point. In open sources and media reports about patients suffering from exposure to chlorine, the Hanin Medical Point and a medical field facility can be seen. Hanin Medical Point is funded by donations, without the consent of the Government of the Syrian Arab Republic. Due to the limited capacities, severely injured people are often referred to other hospitals.

Narrative

12. There are different descriptions of the events in Al-Tamanah. The description emerging from the testimony of FFM witnesses is that in the night between 29 and 30 April 2014, an alert was issued by a flight monitoring observatory of helicopters approaching and potentially bringing chlorine bombs. Two barrel bombs were dropped and 35 patients sought medical attention with symptoms related to chlorine exposure at that day. According to the witnesses, Al-Tamanah was attacked five times with barrel bombs possibly containing chlorine dropped from helicopters in April and May 2014.

13. The Government of the Syrian Arab Republic denies any military activity of its Forces in Al-Tamanah on that date and provided information to show that the events had been fabricated. In accordance with this, seven witnesses stated that frequent alerts had been issued, but in fact no incidents with chemicals took place.

[1] On 30 May 2013, Islamic State in Iraq and the Levant (ISIL) and the Nusrah Front were designated as terrorist groups by the Security Council under resolution 1267 (1999).

While people sought safety after the warnings, their homes were looted and rumours spread that the events were being staged.

14. Based on witness statements, the Mechanism assessed the possibility that a conventional air strike or attack took place and the chemical exposure was wrongly attributed to this. However, no air activity could be established. The witness testimonies of air strikes did not specify a date and the description as such could not be linked to the incident of 29-30 April 2014. Hence, this possibility was disregarded.

15. Several witnesses gave testimony of repeated air strikes around or on the dates of the incidents in Al-Tamanah. Information and statistics available to and analysed by the Mechanism did not contain specific data on air strikes in the town, to establish a more accurate picture of the conflict dynamics in the immediate vicinity at the time. The Government of the Syrian Arab Republic stated that no military activities were conducted from land or air in Al-Tamanah on the dates of the incidents, but did not provide any records of flight operations to support this statement.

Date and time

16. Most of the witnesses were interviewed several months after the alleged incidents. Due to the frequency of alerts and incidents related to military activity, the witnesses' memory of the events might have blurred. Most of them did not give specific dates, but referred to several incidents in a timeframe between March and June 2014.

17. Only one witness specifically referred to the incident on 29-30 April 2014, but did not provide a specific time. The same witness said that four people died in this incident and did not mention a second impact location.

18. Three witnesses, who did not give any description of the incident on 29-30 April 2014, provided material of unknown source. One witness had second-hand knowledge of two of the five incidents in Al-Tamanah, but did not remember the exact dates. Later that witness provided a USB-stick with information of unknown origin, which was saved in separate folders according to the dates of all the five incidents mentioned by the FFM. Another witness provided the dates of all five incidents reading it from a piece of paper, but did not provide any testimony on the incident on 29-30 April 2014. The latter also provided a video titled "site where second barrel containing toxic chlorine gas was dropped tamanaa 30 April 14".

19. Several media reports quoted "local activists" saying that one or several helicopters dropped "two bombs laden with gas" or "explosive devices containing chlorine" on the town of Al-Tamanah in the early hours of the morning of 30 April 2014. Several open source videos show patients being treated in what appears to be Hanin Medical Point and a field medical facility.

20. Several witnesses stated that chemical weapons alerts through media or the local early warning systems occurred frequently at non-regular intervals since April or May 2014. Although the majority of witnesses referred to the chemical weapons alerts, issued by a "flight observatory", the exact dates of the warnings remained unclear.

21. Seven witnesses stated that after several alerts, no attack actually occurred, and that they had come forward to contest the wide-spread false media reports. The alerts, they said, were false alarms and toxic chemicals had never been used in Al-Tamanah. It remained unclear how they could make such exclusive statements for the whole town at any time. Some of these witnesses stated that after the false chemical alerts, the houses of those who evacuated had been looted.

22. When interviewed a second time, two of those witnesses described air strikes in Al-Tamanah in or at the end of April 2014, which they had not mentioned before, but said that chemicals were not involved in any of the attacks. Although no specific dates have been given, the Mechanism investigated the possibility that these statements refer to the incident on 29-30 April 2014, but could not find any links to support that.

Weather conditions

23. In the night from 29 to 30 April 2014, between 2000 and 0100 hours, the wind came from the west (260-300°) and the wind speed declined from 4 m/s to 2 m/s over that period. For the rest of the night, the wind speed from various directions declined from 4 m/s to 2 m/s. From 2000 to 0600 hours, the temperature dropped gradually from 18°C to 13°C and the relative humidity increased from 82 per cent at 2000 hours to 93 per cent at 0600 hours.

Impact locations

Location #1

24. The Mechanism endeavoured to establish the location of the impact at a residential house in the north of Al-Tamanah. The exact location was not given and could not be determined from the descriptions and reference points given by the witnesses. No public satellite imagery was available for the time and location in question. Despite repeated requests, no military satellite imagery was made available to the Mechanism either.

25. All footage provided by witnesses was showing the interior of the Hanin Medical Point, but not the surrounding area. Two videos (open source) show an impact location between houses that appear uninhabited. The videos do not show enough of the surroundings to establish the exact impact location.

Location #2

26. Another video (available on open sources), which has been provided to the Mechanism by several different sources, shows remnants on an open field. An additional video provided by a witness shows an impact location on an open field with something that looks like remnants of munition. The impact location is next to an unpaved road. Houses that look uninhabited can be seen in the vicinity, some of which are damaged. The video does not show enough of the surroundings to establish of the exact impact location.

Munition

Location #1

27. The Mechanism did not obtain any parts, samples or imagery (photos or videos) of the munition or its remnants at location #1. Some remnant fragments can be observed in the videos mentioned previously, but not enough to allow for sufficient analysis.

28. The witness described the impact of a barrel and subsequent explosion, as observed from a roof, as follows: “A flame or fire or something yellow went 20-25 m up in the air and disappeared immediately.” This is understood to refer to the location #1. The witness did not mention a second impact and stated that four people had died in this attack, although no deaths have been established by the FFM for this incident. The witness did not have a mask and, therefore, was unable to go to the impact location. The witness neither mentioned the smell of chlorine nor was aware of a chemical alert.

Location #2

29. The Mechanism did not obtain any parts or samples of the munition or its remnants at location #2. The remnants in the video of location #2 could be interpreted as remnants of a barrel bomb. However, only parts of the outer jacket can be seen, not allowing for a definite analysis either. In the absence of sufficient footage or any description of the remnants, the Mechanism endeavoured to draw conclusions on the munition from the description of the impact.

30. The Government of the Syrian Arab Republic provided information that on 30 April 2014 a device left by an armed opposition group exploded on an agricultural road west of Al-Tamanah, which led to the death of one citizen. The Mechanism investigated potential links to location #2, but could not find any further information to support this.

Delivery method

31. Despite repeated requests, none of the Mechanism’s sources provided information regarding air movements on the night from 29 to 30 April 2014; neither affirmative nor negative. Only the Government of the Syrian Arab Republic provided information and stated that they did not have any military activities from land or air in Al-Tamanah at this date. Witness statements about air strikes around the time could not be linked to the specific night from 29 to 30 April 2014.

Location #1

32. The eyewitness, who stated to have been on the roof, said to have heard a helicopter and the “very loud” sound of a falling barrel. Some interviewees had referred to a distinct whistling sound of barrels that contain chlorine as they fall. The witness statement could not be corroborated with any further information.

Location #2

33. No witness statements or other information was available to either confirm the claim that a second barrel bomb was dropped from a helicopter, or that an improvised explosive device (IED) exploded.

Damage and effects

Location #1

34. According to the eyewitness, the building was almost entirely destroyed, with only two walls remaining standing. The surrounding area was also affected. The two videos mentioned above also show a high level of destruction.

35. The Government of the Syrian Arab Republic has put forward their analysis of these two videos, concluding that the destruction was a result of a conventional munition rather than a chemical munition.

36. The Mechanism requested a forensic examination from an independent institute. The findings were inconclusive. A shallow "hole" can be seen; it might have been the result of a conventional barrel bomb with explosives, but an impact from a chemical barrel bomb could not be excluded.

37. Additional open source videos are allegedly related to the incident on 29-30 April 2014. Two of those videos were considered showing location #1. Parts of a destroyed house can be seen, together with a crater and something that might be remnants of munition. However, it could not be determined whether these munition parts are linked to the impact, or not. The videos do not show enough of the surrounding areas to determine potential environmental impact.

38. The description of the impact by the witness, in addition to the destruction seen in the videos, does rather point to the use of conventional munition (air or land) than to the use of a barrel bomb filled with chlorine, which would have a small explosive charge. The information available, however, is not enough for a thorough analysis.

Location #2

39. The videos do not show a crater or other signs of the impact of the remnants.

Medical effects

40. The FFM describes the medical symptoms of patients for all of the five incidents in summary. For the 29-30 April 2014 incident, the FFM reported 35 patients. A witness who provided the dates, number of patients and deaths for each of the five incidents, read it from a piece of paper.

41. The eyewitness of the explosion related to location #1 stated that four people died and 70 were injured in this incident, while the FFM report had established only 35 patients and no deaths. Some media reports also referred to 70 people affected by the use of chlorine as a weapon.

42. An independent source provided a list of unknown origin with 12 names of people injured with chlorine gas on 29 April 2014. No medical records have been received from the Hanin Medical Point, despite repeated requests. The Mechanism requested medical documentation from referral hospitals, but did not receive any information relevant to the date and incident in question.

43. Videos retrieved from open sources and from a witness, respectively, show patients being treated in Hanin Medical Point and in a medical field facility. However, the analysis of these videos did not provide any additional and verifiable

information on the alleged impact site or delivery methods. For that reason, no further forensic analysis has been undertaken.

44. Some of the witnesses stated that “nothing happened” in Al-Tamanah and did not see any patients that suffered from chemical exposure. However, these witnesses are not considered to be in a position to make definitive statements for the whole town.

45. Without knowing the impact location and how densely the impact area was populated, in addition to the fact that many people had left the village when a chemical weapons alert was issued, insufficient data was available to apply chlorine dispersion models.

Further information

46. The incident received broad media coverage. Some international media reported that the Government of the Syrian Arab Republic had used barrel bombs with toxic chemicals.

47. Several witnesses reported that local responders (sometimes specified as the “white helmets”) established basic early warning systems through local media, volunteers, hand-held radios and mosques. After the first chemical attacks, they provided information about the recommended behaviour in case of air strikes and chemical attacks. In case of chemicals alerts, people were encouraged to move upwind of the point of impact to higher elevations, while in case of conventional attacks people were advised to seek shelter in basements.

48. Six witnesses stated that people left the village and that during the evacuation after what they said were false alarms, their own or neighbours’ houses were looted. Some referred to people with “masks”, potentially gas masks, who were giving face masks soaked in “Coca-Cola” or “Pepsi” to children. Two witnesses referred to rumours in town of people trying to “blame” the Government or stage the incidents.

49. A witness described an air strike on the house of an armed opposition group fighter “at the end of April”. The next day, people wearing masks were “digging something out of the ground” and filming the scene, saying that Al-Tamanah was hit with toxic chlorine gas. However, the witness did not smell gas or see any injured people. When interviewed before, the same witness had not mentioned this incident.

50. Some of the witnesses said that armed men, some of them from Al-Tamanah and some foreigners from other countries, were issuing false chemical alarms saying that the Government of the Syrian Arab Republic military would attack the village with chemicals, sometimes saying chlorine, and telling people to leave the village. These alerts were issued in different ways, from vehicles with microphones, mosques or just telling people in person. Two witnesses mention the same person who was allegedly filming the “staged” scenarios.

51. One witness said that people were knocking on the door. People on motorcycles and cars told people to leave the house because a plane was going to attack. Children of different ages were running after them. Apparently the people, which the witness believes to belong to the Nusrah Front, went to the school, took the children out and gave them diapers soaked with a liquid in order to use them as gas masks, claiming that chlorine would be used in the air strike. The witness stayed at home despite the warning and did not smell or see anything.

The Leadership Panel's assessment

52. The Leadership Panel determined that there is insufficient information to confirm, or to exclude the possibility of a chemical attack. It further determined that there was contradictory and insufficient evidence to draw a conclusion on the actors involved.

53. This assessment was based on the following:

- There is scarcity of relevant information about the incidents in Al-Tamanah. No flight movements could be established by the Mechanism.
- There are discrepancies in the statements made by different witnesses and the descriptions of the event are inconsistent. On the one hand, some witnesses described people affected by the use of chlorine as a weapon. On the other hand, other witnesses described air strikes in Al-Tamanah in or at the end of April 2014 and stated that chemicals were not involved in any of the attacks.
- This incident has been considered by experts to stem from an attack with conventional munition.

Annex VI

Al-Tamanah, 25-26 May 2014

Findings of the OPCW Fact-Finding Mission in the Syrian Arab Republic

1. The Fact-Finding Mission (FFM) concluded that the information collected constituted “a compelling confirmation that a toxic chemical was used as a weapon, systematically and repeatedly, in the villages of Talm[e]nes, Al-Tamanah, and Kafr Z[i]ta in northern Syria. The descriptions, physical properties, behaviour of the gas, and signs and symptoms resulting from exposure, as well as the response of the patients to the treatment, leads the FFM to conclude, with a high degree of confidence, that chlorine, either pure or in mixture, is the toxic chemical in question”. (S/2015/138, page 24, paragraph 29)

2. “The dates recounted are 12, 18 and 30 April 2014, and 22 and 25 May 2014. All attacks, except the one of 22 May 2014, occurred at night.” (S/2015/138, page 20, paragraph 10)

3. Among the five dates that the witnesses recalled was an incident in the night from 25 to 26 May 2014, without casualties. (S/2015/138, Table 4 on page 43)

The Mechanism’s investigation

Background

4. Al-Tamanah (Idlib Governorate, Ma'arrat al-Nu'man District) is located less than 9 km east of the M5 Damascus-Aleppo motorway, on the section between the cities of Hama and Idlib. The FFM reported that in 2014 approximately 20,000 inhabitants lived in Al-Tamanah, as compared to 7,385 in town and 29,144 in the sub-district in the 2004 census. This included 5,000 to 10,000 internally displaced persons (IDPs). According to a report from the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), in August 2014, 5,500 IDPs were in need of humanitarian assistance in the Al-Tamanah sub-district.

5. At the time of the incidents, Al-Tamanah found itself in immediate proximity to the front line. While several armed opposition groups operated from the vicinity of Al-Tamanah, the Government of the Syrian Arab Republic held checkpoints and bases along the M5 motorway and Khan Shaykhun in the west of Al-Tamanah.

6. The first half of 2014 in Idlib saw clashes between the Government of the Syrian Arab Republic and armed opposition groups around the M5. The armed opposition groups were aiming at — and partly succeeding in — opening their access to Idlib city and cutting Government supply to their military bases. Morek (approximately 10 km to the south-south-west of Al-Tamanah) had been captured by armed opposition groups in February 2014, since been contested and reportedly recaptured by Government forces on 14 April 2014.

7. In March and April 2014, armed opposition groups’ operations concentrated on capturing checkpoints along the M5 between Morek, Khan Shaykhun and Ma'arrat al-Nu'man. It seems that different groups were at that time joining forces and divided “responsibility” of checkpoints among them. The Government of the Syrian

Arab Republic sought to maintain M5 access while also establishing alternative routes to Aleppo and Idlib city.

8. Several witnesses gave testimony of repeated air strikes around or on the dates of the incidents in Al-Tamanah. Information and statistics available to and analysed by the Mechanism did not contain specific data on air strikes in the town to establish a more accurate picture of the conflict dynamics in the immediate vicinity at that time. The Government of the Syrian Arab Republic stated that it did not conduct any military activities from land or air in Al-Tamanah on the dates of the incidents.

9. In the first half of 2014, Al-Tamanah was reportedly being used as a "collective operational base" by several armed opposition groups. Witnesses also referred to the presence of the Islamic State in Iraq and the Levant (ISIL)[1] in Al-Tamanah; however, following clashes with the Nusrah Front and armed opposition groups, ISIL had largely retreated from Idlib in March 2014.

10. Several armed opposition groups had presence and operations in the area, however, due to the high volatility of conflict dynamics, their locations and alliances (in addition to contradicting reports, most of which do not have the level of detail required), the exact locations and spheres of influence at the date and locations investigated cannot be established with certainty.

11. One of the more influential armed opposition groups was reportedly the Idlib Military Council, which formed part of the Jabhat Thuwar Suriyya since December 2013. There are contradicting statements regarding the presence of other armed opposition groups at the time of the incidents. While some sources report that Jaish Al-Izza, an alliance of several groups formed in 2014, was temporarily headquartered in Al-Tamanah, other sources did not confirm this. Witnesses indicated that Ahrar ash-Sham had presence there too, but its representatives did not confirm this.

12. Two health facilities in Al-Tamanah have been mentioned by witnesses in relation to the incidents under investigation — the Hanin Medical Charity/Point and the 9th Medical Point. In open sources and media reports about patients suffering from exposure to chlorine, the Hanin Medical Point and a medical facility in a tent can be seen. Hanin Medical Point is funded by donations, without consent of the Government of the Syrian Arab Republic. Due to the limited capacities, severely injured people are often referred to other hospitals.

Narratives

13. The description that emerged from the testimony of FFM witnesses was that on the night between 25 and 26 May 2014, two barrel bombs were dropped over Al-Tamanah. One of it failed to explode (location #1), but the impact opened a cylinder inside the barrel which leaked chlorine. The unexploded barrel was found in the morning. The other barrel bomb exploded (location #2), but nobody was affected as it fell in an uninhabited area of the village.

14. Similarly to the incident on 29-30 April 2014, the Government of the Syrian Arab Republic denies any military activity of its forces in Al-Tamanah on 25 and

[1] On 30 May 2013, Islamic State in Iraq and the Levant (ISIL) and the Nusrah Front were designated as terrorist groups by the Security Council under resolution 1267 (1999).

26 May and provided information to show that the events had been fabricated. Accordingly, other witnesses stated that frequent alerts had been issued but in fact no incidents with chemicals took place, and while people sought safety after the warnings, their homes were looted. Witnesses stated that they heard rumours that the events were being staged.

Date and time

15. Most of the witnesses did not give specific dates, but referred to several incidents between March and July 2014. Only one witness specifically recalled the date of 25-26 May 2014. The same witness stated to have helped dismantle the munition the following day and noticed a strong smell of chlorine. That witness also provided five videos of the excavation of the munition, in addition to five pictures of the remnants in a courtyard.

16. Another witness gave the summary of an event that resembled the description of the first witness and likely refers to the same incident, without recalling the exact date, and said that the event occurred around 2300 hours. The interviewee was among a group of people who found the unexploded munition the following morning.

17. A third witness described second-hand knowledge about an incident in which one barrel bomb failed to explode but leaked gas.

18. One witness had second-hand knowledge of two of the five incidents in Al-Tamanah. The witness did not remember the exact dates, but later provided a USB-stick with information, which was saved in separate folders according to the dates of all the five incidents mentioned by the FFM. The folder “صور البرميل 25-5-2014” contained four pictures and a video of the munition in a courtyard. This witness did not refer to this incident during the interview.

19. Another witness provided the dates of all five incidents, reading it from a piece of paper, but did not provide any testimony related to the incident on 25-26 May 2014.

20. Seven witnesses from Al-Tamanah said that since April 2014, “false” chemical weapons alerts occurred frequently in non-regular intervals. Several of them stated that no chemical weapons had ever been used in Al-Tamanah.

Weather conditions

21. On the night from 25 to 26 May 2014, between 2000 and 0500 hours, the wind came from the west (280°) at a speed from 3 m/s to 2 m/s (3 m/s at 2000 hours). The temperature dropped gradually from 22°C to 15°C and the relative humidity increased from 79 per cent at 2000 hours to 89 per cent at 0500 hours.

Impact location

22. The witness who gave a testimony resembling the events on 25 and 26 May without recalling the date drew a map of the impact location. However, due to the lack of detail and reference points on that map, it did not help to determine the impact location. Another witness drew a map of four impact locations in Al-Tamanah and numbered them 1, 2, 3 and 5, but it is unclear which impact location from the drawing correlates to which incident.

Location #1

23. The exact impact location of the barrel that failed to explode could not be determined from the witness statements or footage provided. Four videos showed this impact location (v01-v04). All four videos are filmed in close-ups and the surroundings cannot be seen. These videos were not forensically examined.

24. A witness stated that an unexploded barrel fell on a house and mentioned the name of the owner. The exact location of the house could not be determined. No public satellite imagery of the timeframe in question was available to find a potential crater or impact. No military satellite imagery has been made available to the Mechanism despite repeated requests.

Location #2

25. The witness who helped to evacuate the unexploded munition and recalled the exact date stated that another barrel exploded but fell onto a house in an uninhabited area. This witness also provided a video of the impact location. Another witness also provided a video of that impact location. While these two videos are filmed from different angles and have different lengths, they show the same scene. Not enough of the surrounding area can be seen in these videos to help determine the coordinates of the impact location. The witness who helped excavate the munition at impact location #1 but did not remember the exact date mentioned the impact in an uninhabited area too, and said that they searched but could not find this impact location.

Munition

Location #1

26. The device at location #1 failed to explode. The witness who helped to excavate it and recalled the exact date provided four videos related to impact location #1: v01 shows the impact site; v02, the dismantling of the barrel; v03, the excavation; and v04, the barrel being loaded onto a pickup truck. That witness also provided five pictures of the munition in a courtyard. Another witness could not remember the dates of the incidents and in the interview could not describe the incident on 25-26 May 2014, but provided a USB-stick that had four pictures and a video of the munition in the same courtyard under a folder named “صور البرميل 25-5-2014”.

27. The Mechanism could not independently verify the time and location of these videos and pictures, in particular due to the fact that they were shot up close and there was a lack of surroundings on the videos (i.e., no comparators to do the analysis). The surroundings are not clearly visible in any of the footage.

28. V02 shows the unexploded barrel that looks like it landed in a hole approximately 2.5 m deep, buried more than halfway in the soil with its fins up in the air (i.e., the rear end of the barrel). Two persons are in the hole, dismantling the munition. Both persons, in addition to other people at the edge of the hole, have protective masks without canisters over their faces (i.e., those “gas masks” would be non-functioning). Also, none of the people are wearing any additional protective gear such as gloves. During the whole dismantling process, the two persons were not using any of the safety measures or equipment that would be required for this activity if hazardous substances were leaking in a confined space like the hole.

29. From what can be seen, the unexploded barrel bomb consists of an outer barrel, an inner cylinder, powder that might be explosive and detonation cords. There seems to be a significant amount of the powdery substance between the inner cylinder and the outer barrel. The inner cylinder has two valves, one of which is wrapped in large amounts of detonation cords, fixed with tape. The detonation cords go from the valve of the inner cylinder towards the bottom part of the barrel. It cannot be said if the inner cylinder is empty or filled with anything. A piece of cloth and more of the powdery substance were between the outer barrel and inner cylinder.

30. In v03, the barrel is still in the position as described above, but chains were attached. Many people, including children, surround the hole, none of them wearing protective masks or gloves. The barrel is being dragged out of the ground and the hole. When the barrel is pulled out of the hole, the damage of the outer barrel can be seen at the rear end where the fins are. The bottom of the inner cylinder is also visible and no defects or ruptures can be noticed.

31. V04 shows people dragging the barrel through a courtyard, up the stairs and loading it on a pickup truck. None of them are wearing any protection. Five pictures provided by this witness show the same munition in a tiled courtyard. It looks like all the powdery substance was removed together with the detonation cords and pieces of cloth.

32. The witness who provided the videos described the munition as follows: “On the valve of the inner cylinder was a detonator, which looked like a blue rope or blue strain and goes around the valve to detonate it so the gas could come out; and a yellow-brownish powder (about 50 kg in total) was between the inner cylinder and the outer barrel and on the top of the inner cylinder. It is there to help with the explosion.” The unexploded barrel was approximately 1.5 m long and had a cover on the top and bottom, held with screws. The barrel did not contain any markings and was locally made. The cylinder had numbers on the top, “maybe 976”. This witness stated that the device fell and impacted with the tail part first, damaging the bottom of the cylinder, and demonstrated this with a self-made drawing. On this drawing, the tails and fins of the device are shown sticking in the ground. However, in the video that the same witness provided, the tail and fin parts are above the ground and the nose-end impacted the ground first.

33. The munition in a tiled courtyard shown in the video and pictures provided by another witness matches the one in the videos.

34. In an additional open source video (v05), a person that is also seen in the videos discussed above stands next to what is assessed to be the same barrel. The person states that this was the fifth attack on Al-Tamanah with a barrel that contained a substance that they think is chlorine, but that the barrel did not explode when it fell on soft soil. The cylinder inside released the gas slowly over the course of at least three hours. Forensic examination found a time stamp indicating the uploading date of the video to “YouTube” as 29 May 2014 at 14:23:32 UTC, although it could also have been uploaded on 28 May, two to three days after the alleged incident. However, the analysis can neither establish the date on which the video was filmed nor give information on the location.

35. In none of the videos and pictures provided can a fuse or blasting cap be seen. Hence, it cannot be determined from this material how this barrel bomb functioned.

The covers on top and bottom mentioned by the witness, held with screws, were not seen in any of the videos or pictures.

36. Forensic examination of v05 stated that the munition “seems to be of the same thin metal as seen before in other cases”. According to the analysis, which is coherent with the Mechanism’s assessment, the explosion of 50 kg of explosives would have destroyed (fragmented into small pieces) the outer jacket. The munition’s effects on the surroundings would be more like those of a conventional munition rather than of a munition filled with chemicals. If this amount of explosives detonated, and the inner cylinder had contained chlorine, the chlorine would likely be oxidized which would greatly limit the effect of chlorine gas.

37. Also, it is unclear when the gas leakage took place. The witnesses said that upon arrival at the scene, they had to get gas masks because the smell was too strong. However, the gas masks in the videos were missing filter canisters. It is unclear how long after finding of barrel the dismantling, as seen in the video, started.

38. The forensic report also stated: “It is judged that the cylinder may leak gaseous substances for shorter or longer times than three hours depending of the content of the cylinder (pure gas, extent of mixing of chemicals) and the damage type and extent.”

39. The Government of the Syrian Arab Republic provided their analysis of v05, in which a person says that the cylinder leaked gas for three hours, stating that the gas in the inner cylinder would be released in seconds due to the pressure, volume, damage, temperature and impact strength. The Mechanism can neither accept nor reject this assessment, as too little is known about the specifics of the container, filling of the cylinder, damage and surroundings to exclude the possibility of a three-hour long leaking process with certainty.

Location #2

40. According to a witness, the second barrel fell onto a house which nobody lived in and exploded. The witness went to location #2 and smelled chlorine, but did not see any remnants. Another witness stated that “they” had searched, but could not find this impact location. The videos from this location show something that looks like remnants, but it cannot be said for sure.

Delivery method

41. The Government of the Syrian Arab Republic stated that they did not have any military operations on land or air at the time of the incident. Despite repeated requests, none of the sources used by the Mechanism could provide any information regarding air movements on the date in question, neither affirmative nor negative.

42. The witness who helped to excavate the munition said that on 25 May 2014, two barrels were dropped. In the open source videos described above, the speaker refers to air strikes by the “Assad” forces.

Location #1

43. Forensic examination of the footage of the munition assessed that the existence of stabilizing fins point towards the barrel bomb being constructed to be dropped from

an aircraft. On hard soil, the penetration of the barrel into the ground after being dropped from a high altitude would be very limited and the damage on the barrel would be substantial, which is not the case with the barrel in the video. In soft soil, it could penetrate further down and the impact could have affected the nose/front part of the barrel in such a way as seen of the barrel depicted in the video. A witness mentioned impact in “soft soil”; however, the condition of the soil could not have been determined from the video analysis to assess whether the deep penetration of the barrel into the ground could have resulted from a high-altitude drop.

Location #2

44. There is no further specific information on location #2 with regard to the delivery method.

Damage and effects

Location #1

45. The barrel fell into a hole in the ground and failed to explode.

Location #2

46. The videos from this impact location show a lot of destruction and damage on the houses. No crater can be seen in any of the videos.

Medical effects

47. None.

Further information

48. The incident received broad media coverage. Some international media reported that the Government of the Syrian Arab Republic had used barrel bombs with toxic chemicals.

49. Several witnesses reported that local responders (sometimes specified as the “white helmets”) established basic early warning systems through local media, volunteers, hand-held radios and mosques. After the first chemical attacks, they provided information about the recommended behaviour in case of air strikes and chemical attacks. In case of chemicals alerts, people were encouraged to move upwind of the point of impact to higher elevations, while in case of conventional attacks people were advised to seek shelter in basements.

50. Six witnesses stated that people left the village and that during the evacuation after what they said were false alarms, their own or neighbours’ houses were looted. Some referred to people with “masks”, potentially gas masks, who were giving face masks soaked in “Coca-Cola” or “Pepsi” to children. Two witnesses referred to rumours in town of people trying to “blame” the Government or stage the incidents.

51. A witness described an air strike on the house of an armed opposition group fighter “at the end of April”. The next day, people wearing masks were “digging something out of the ground” and filming the scene, saying that Al-Tamanah was hit with toxic chlorine gas. However, the witness did not smell gas or see any injured people. When interviewed before, the same witness had not mentioned this incident.

52. Some of the witnesses said that armed men, some of them from Al-Tamanah and some foreigners from other countries, were issuing false chemical alarms saying that the Government of the Syrian Arab Republic military would attack the village with chemicals, sometimes saying chlorine, and telling people to leave the village. These alerts were issued in different ways, from vehicles with microphones, mosques or just telling people in person. Two witnesses mention the same person who was allegedly filming the “staged” scenarios.

53. One witness said that people were knocking on the door. People on motorcycles and cars told people to leave the house because a plane was going to attack. Children of different ages were running after them. Apparently the people, which the witness believes to belong to the Nusrah Front, went to the school, took the children out and gave them diapers soaked with a liquid in order to use them as gas masks, claiming that chlorine would be used in the air strike. The witness stayed at home despite the warning and did not smell or see anything.

The Leadership Panel’s assessment

54. The Leadership Panel examined the existing information and evidence regarding the incident in Al-Tamanah on 25-26 May 2014 and determined that there was insufficient evidence to draw a conclusion on the actors involved and the modality of the use of chemicals as weapons in this incident.

55. This assessment was based on the following:

- There is scarcity of relevant information about all incidents in Al-Tamanah. No flight movements could be established by the Mechanism.
- Several witnesses stated that since April 2014, “false” chemical weapons alerts occurred frequently in non-regular intervals and that no chemicals had ever been used as weapons in Al-Tamanah.
- Other witnesses informed of an unexploded “barrel bomb” which leaked chlorine. However, there was insufficient evidence to corroborate these testimonies.

Annex VII

Qmenas, 16 March 2015

Findings of the OPCW Fact-Finding Mission in the Syrian Arab Republic

1. The Fact-Finding Mission (FFM) report (S/2015/908, page 84, paragraph 3.8) refers to an incident on the night of 16 March 2015 between 2000 and 2100 hours: "… the occupants of the houses situated in the eastern and north-eastern part of the village, relatively close to the impact point, smelled an odour similar to chlorine-based household cleaning agents, but much more intense." (S/2015/908, page 84, paragraph 3.9)

2. "From the 60 or so individuals who arrived from Qmenas to the Sarmin field hospital on 16 March 2015, 40 cases had clinical signs of anxiety, six cases were considered as secondary exposure (one treating physician and five first responders), and 14 patients were considered as directly exposed." (S/2015/908, page 84, paragraph 3.12)

3. "In itself, no one source of information or evidence would lend particularly strong weighting as to whether there was an event that had used a toxic chemical as a weapon. However, taken in their entirety, sufficient facts were collected to conclude that incidents in the Syrian Arab Republic likely involved the use of a toxic chemical as a weapon. There is insufficient evidence to come to any firm conclusions as to the identification of the chemical, although there are factors indicating that the chemical probably contained the element chlorine." (S/2015/908, page 151, paragraph 5.19)

The Mechanism's investigation

Background

4. Qmenas (Idlib Govenorate, Idlib District) is located 6 km south-east of Idlib city. Sarmin is less than 5 km to the northeast and Saraqib 12 km to the east, the latter located at the junction of the M5 Damascus-Aleppo and M4 Latakia motorways. The airfield of Taftanaz is approximately 13 km linear distance in the north-east.

5. In the 2004 census, the village of Qmenas had about 2,700 inhabitants. In August 2014, a report from the Office for the Coordination of Humanitarian Affairs recorded high numbers of internally displaced persons (IDPs) in Idlib District. Some sources report that Qmenas still had a large population, as many people from Idlib city had been displaced there and often stayed with relatives, while other sources state that the village had been depopulated due to the proximity to the frontline.

6. In 2014, Government presence in Idlib had consisted of networks of checkpoints and military installations: one running along the M5 between Ma'arrat al-Numan and Khan Sheikhoun, and the other along the M4 connecting Latakia to Idlib city.

7. In summer 2014, the Nusrah Front[1] started to fight armed opposition groups in Idlib, many of whom it had been fighting alongside against the Government. Those included Jabhat al-Thuwar and Harakat Hazm. The Nusrah Front took control of several regions and towns in Idlib Governorate, in addition to weapons and facilities of the groups it defeated.

8. On 15 December 2014, the Nusrah Front, as well as Ahrar ash-Sham, Jund al-Aqsa and fighters from armed opposition groups captured the military bases of Wadi al-Deif and Al-Hamidiyah and thus controlled the M5 motorway north of Morek and several military checkpoints, cutting an important Government access route to Idlib and consolidating their presence in the southern part of Idlib Governorate.

9. Qmenas and Sarmin, immediately to the west of Idlib City, were controlled by armed opposition groups and right next to the frontline. Towards the east, Saraqib at the strategic M5-M4 junction and Taftanaz Military Airbase had been under the control of armed opposition groups since November 2012 and January 2013, respectively.

10. The Government of the Syrian Arab Republic controlled Idlib city and military bases south of Idlib, 4 km west of Qmenas.

11. On 24 March 2015, several factions officially announced the formation of Jaish al-Fatah and commenced operations to seize Idlib city, temporarily succeeding on 28 March 2015, after heavy clashes. The founding members of Jaish al-Fatah included Nusrah Front, Ahrar ash-Sham, Jund al-Aqsa, Failaq al-Sham and others.

12. Qmenas served as one of the bases to prepare the Idlib offensive, with the presence of Nusrah Front and other Jaish al-Fatah factions. While some sources stated that Ahrar ash-Sham controlled the village, the group did not confirm that. Witnesses reported of military installations in the village, without specifying the affiliation of fighters or groups.

13. A witness stated that armed groups were preparing to attack Idlib "in order to liberate it", and that the incident occurred a few days before the offensive started. According to the same witness, fighters were positioned in Qmenas and on the road to Sarmin awaiting the attack.

14. Between 16 March and 20 May 2015, the incident in Qmenas was the first of several incidents reported in and around Idlib city where chemicals were used as weapons, as recorded by the FFM. However, it remained the only incident in Qmenas. The incidents in Sarmin in the same night occurred only two to three hours later.

15. Qmenas does not have any health-care facilities; the next available medical facilities are the field hospital in Sarmin and the general hospital in Saraqib.

Narrative

16. The description that emerged from the testimony of FFM witnesses was that a helicopter dropped two items or "barrel bombs" at the edge of a military zone. A few minutes later, the witnesses noticed a chlorine-like odour. Those exposed

[1] On 30 May 2013, the Nusrah Front was designated as a terrorist group by the Security Council under resolution 1267 (1999).

suffered from tearing of the eyes, coughing and breathing difficulties. A chemical alert was issued through a local warning system, causing panic.

17. The Government of the Syrian Arab Republic denied any air movements in that area that day and provided a different explanation of the exposure of people to chemical substances. The Government reported that Jund al-Aqsa fighters transported barrels filled with an unidentified liquid from underground hollows known as Maghawir al-Dawash, located between Sarmin and Qmenas. One of the barrels fell from the vehicle, releasing gas that affected the fighters and some residents from Qmenas and Sarmin. All suffered from “asphyxiation”.

18. In the course of the investigation, the Government of the Syrian Arab Republic provided information indicating that opposition fighters used a hell-cannon filled with chemicals against other armed opposition groups. Due to the lack of supporting information and inconsistency with the Mechanism’s findings, the use of a hell-cannon has been excluded as a viable option.

Date and time

19. Three witnesses confirmed the date of the event occurred on 16 March 2015. The indications of the time diverge slightly, but focus around 2000 and 2100 hours. Four Member States provided information that supports the time of the incidents. The Government of the Syrian Arab Republic confirmed the date of the incident involving chemicals, but did not provide a time.

Weather conditions

20. The sunset in Qmenas on 16 March 2015 was at 1741 hours. From 2000 to 2100 hours, the temperature was at 10°C with wind from the west (260°) at a speed of 3 m/s. The humidity was at 95 per cent.

Impact location

21. One witness stated that both “barrel bombs” impacted inside a military zone; another said that only one impacted inside the military zone and the other one in a residential area.

22. The Maghawir al-Dawash hollows are located at the south-west outskirts of the village of Sarmin, near the road to Qmenas. The distance between the hollows and Qmenas is approximately 3 km.

Location #1

23. Three witnesses showed the impact location on a map, at the outskirts of Qmenas on the road to Al-Nerab. The differences in the coordinates were minimal.

24. In order to corroborate the location, ten images of the alleged impact location were examined by a forensic institute. It concluded that all ten included image content that visually linked the images together and thus could confirm that all the images depict the same place. The metadata examination and visual analysis did not show any sign of manipulation.

25. There are no signs indicating that the pictures were altered to include the remnants. Since the pictures were taken two days after the attack, it cannot be ruled out that the remnants could have possibly been placed at the location beforehand.

26. Through visual comparison of the pictures with satellite images, the forensics specialist determined geographical coordinates of this location matching those shown by the witnesses.

Coordinates of location #1 as provided by different sources

Source	*Latitude (decimal)*	*Longitude (decimal)*
Witness	N35.882889°	E36.680778°
Witness	N35.882833°	E36.681222°
Witness	N35.882833°	E36.680722°
Forensic institute	N35.882772°	E36.681096°

Location #2

27. Only one witness gave information on the second impact location as N35.882972° and E36.679111°. This is close to location #1, further inside the village. The Mechanism had neither found any additional information to confirm the coordinates for location #2, nor any other information on the barrel bomb that allegedly fell there. Two witnesses stated that a military facility or militarized zone was impacted, and that civilians were affected because the wind had carried the gas to a residential area. The kind of military installation or presence, as well as the military actor, could not be established, apart from the fact that it was not a SAAF facility, but related to an armed opposition or other group.

Munition

28. The following considerations are derived from the analysis of location #1, as no further information is available on location #2.

29. Witnesses described the remnants of the device as a metallic barrel or drum, with a number of exploded gas canisters. This description matches with pictures analysed by the Mechanism and forensic institutes. The metallic barrel, which is possibly the outer jacket of the bomb, has fins. A small exploded canister of a blue-greenish colour is also visible in the pictures. Regarding authenticity, the forensic analysis of the picture concluded that the results of the examination support that the images have not been manipulated and that the photographs were taken two days after the event.

30. Witnesses described a marking on the barrel "IYAD", but this cannot be seen in any of the pictures.

31. According to explosive experts, if the barrel had contained high explosives, the outer jacket would most probably have splintered into small pieces and completely destroyed. It is also possible that the explosive filler did not explode, but that would not explain the canisters found.

32. The remnants seen in this and other pictures look like the remnants seen in Sarmin (canisters and the outer jacket), from the incident that occurred at the same day.

Delivery method

33. Witnesses stated that they heard helicopters and the sound of an explosion which they described as “muted” in comparison with other air-strike impacts. Shortly after, they stated to have received a chemical weapon alert through hand-held radios and the loudspeakers of the minarets of the mosques.

34. A witness described an intercepted radio communication of two helicopter pilots, allegedly using the call sign “Bravo”. According to this testimony, a helicopter took off from Latakia airport around 2100 hours. A few moments after the pilot had informed having “entered the working area”; residents reported the impact of a barrel bomb. This occurred around 2130 hours. From Latakia airbase to Qmenas, a helicopter would take 30 to 33 minutes.

35. After reviewing the type of helicopters that are within the SAAF fleet and the distance from Latakia airport to Qmenas, the witness’ assessment on the time needed to reach Qmenas from Latakia is considered correct.

36. The Mechanism gathered information that a helicopter departed the Bassel al-Assad Airport in Latakia at 2030 hours and passed over Qmenas at 2105 hours, returning to the base at 2130 hours.

37. The Government of the Syrian Arab Republic stated that there was no flight activity at that day in that area, but did not provide any supporting documentations, such as flight records. The Government did not respond to questions regarding the call signs used.

Location #1

38. A defence institute studied the images of the remnants and stated that the outer barrel “has the hallmarks of being dropped from an aircraft. The stabilizing fins are clearly visible as well as a mount for attaching the device to the aircraft. This [barrel bomb] has probably been carried underneath the wings or hull of an aircraft (fixed-wing or helicopter). It is doubtful it was carried by a rocket”.

39. A ballistic expert and a defence institute studied the crater formed at location #1 with regard to determining the delivery method. The crater on the pictures can be observed on satellite imagery dated after 16 March 2015 at the determined location.

40. The ballistics expert concluded that “a bomb, dropped from a helicopter at high altitude, and hitting the ground somewhat obliquely, would be quite likely to create an impact mark looking similar to the one shown in” the crater of location #1. The expert noted that the crater had changed between the moment of impact and when the picture was taken: “On the image it appears that a heavy lorry may have driven across the mark after it was made. It could also be possible that some material was filled back into the hole before the photo was taken, if it had been somewhat deeper, to permit traffic to pass unobstructed.”

41. The defence research institute concluded that the image of the crater was consistent with an object dropped from high altitude onto a hard surface. It was noted that they could not rule out the possibility that “it was simply a bad road” or that someone had dug a hole. They also noted that there were no obvious signs of a large detonation, therefore, the device either contained a low amount of explosives or the explosive filler did not function properly.

42. The Mechanism, with support from several external expert analyses, assessed the possibility that the munition found was launched from a land-based launcher. However, this is considered not feasible.

Location #2

43. No information was available on the second location mentioned by witnesses, which potentially was located in a militarized zone.

Damage and effects

Location #1

44. Witnesses stated that the soil around location #1 had partly changed its colour to reddish-pink. Such colouring on the soil is not visible on any of the photos.

45. The pictures of the impact location show a visible discolouration of the vegetation. A satellite image vegetation index analysis showed “less healthy” vegetation in the north and east of the crater. While damage and effects would suggest the use of chlorine or other toxic chemicals, the Mechanism could not rule out other possible causes.

Location #2

46. No information was made available on the second location.

Medical effects

47. According to witnesses, the ambulances were dispatched to Qmenas after the alerts, but they arrived when all those affected had left the village. One witness stated that some people stopped the ambulances and told them to return, as all patients had already left.

48. Three witnesses confirmed the number of patients as described in the FFM report (S/2015/908). According to these statements, Sarmin hospital from 2045 hours onwards, 60 people sought medical assistance; however, the medical staff assessed that only 20 of them presented clinical symptoms related to chemical exposure, while the others presented symptoms related to anxiety and panic. A witness stated that some opposition fighters were exposed and treated by their military units within their area. There were no deaths reported.

49. Witnesses confirmed the number of patients and provided some names, however, no medical records were provided, despite several requests.

50. The information available on the amount of chlorine, gas and dispersion rate, obstacles and topography was not sufficient for a scientific analysis of the potential chlorine dispersion. With this in mind, the Mechanism used part of the model dispersion model provided by a defense research institute, the established impact location and weather information at the time corroborated to assess whether the number of affected people was in the realm of possible. Noting the lack of information of the exact conditions, this seemed to be the case.

51. The Government of the Syrian Arab Republic stated that people in both Sarmin and Qmenas had been affected as a result of the car accident with a barrel

containing chlorine. The numbers of people affected according to this statement are lower than the numbers provided by the hospital in Sarmin and other witnesses.

52. To affect the population of Qmenas, this accident would have had to have occurred on the outskirts of the village of Qmenas. Anywhere further in the direction of Sarmin, the exposure of Qmenas civilians would be significantly reduced. However, if the car accident was close to Qmenas, the population in Sarmin would not have been exposed to chlorine gas or other toxic gaseous substance, as the direction of the wind was not towards the east and the dispersion would have passed by Sarmin in the south.

The Leadership Panel's assessment

53. The Leadership Panel examined the existing information regarding the incident in Qmenas on 16 March 2015 and determined that a SAAF helicopter dropped one device or barrel bomb in Qmenas.

54. The Leadership Panel was close to having sufficient information to reach a conclusion on the actors involved, however, at this stage the Panel could not draw a conclusion with certainty as to whether the device or barrel bomb contained explosives or chlorine in this incident.

55. The Leadership Panel determined that this case merits further investigation.

56. This assessment was based on the following:

- According to witness statements, a helicopter dropped two devices at the edge of a military zone in Qmenas. However, only one impact location as provided by three different witnesses could be corroborated through forensic analysis of pictures and satellite images.
- The remnants of a device found near the impact crater resemble the remnants of barrel bombs found near other impact sites, most notably in Sarmin. Nevertheless, from the analysis of the remnants and the crater it was not possible to determine if the device contained explosives or toxic chemicals.
- The Mechanism was offered alternative descriptions of the event, such as the accidental release of gas from a barrel that fell from a vehicle operated by an armed opposition group, or opposition fighters using a "hell-cannon" filled with chemicals against other armed opposition groups. The Mechanism was unable to obtain any credible information that would support those alternatives.
- The Mechanism obtained information that a helicopter passed over Qmenas on the date and time of the incident.
- The Government of the Syrian Arab Republic indicated that there had not been any SAAF flights on 16 March 2015 in the area, but did not provide any supporting information. However, the Mechanism obtained information from other sources, which corroborate the helicopter flights on the date and time of the incident.
- At the time when the incident occurred, the Government of the Syrian Arab Republic had lost control of six airbases, including Taftanaz airbase (Idlib Governorate). The Government informed the Mechanism that 15 helicopters

were left behind of at Taftanaz airbase, nine of which were deemed operational.

- The Leadership Panel reviewed all of the information gathered and found no evidence that armed opposition groups in Qmenas were operating a helicopter at the time and location of the incident.

Annex VIII

Sarmin, 16 March 2015

Findings of the OPCW Fact-Finding Mission in the Syrian Arab Republic

1. The Fact-Finding Mission (FFM) described two incidents that occurred on 16 March 2015 between 2230 and 2300 hours in Sarmin. (S/2015/908, page 90, paragraph 3.29)

2. "Between 3 May and 5 June 2015 the FFM team interviewed 21 individuals who provided accounts and information regarding incidents of alleged use of toxic chemicals as a weapon in and close to this village on 16 March, 23 March, and 26 March 2015, and 16 May 2015." (S/2015/908, page 90, paragraph 3.35)

3. "In itself, no one source of information or evidence would lend particularly strong weighting as to whether there was an event that had used a toxic chemical as a weapon. However, taken in their entirety, sufficient facts were collected to conclude that incidents in the Syrian Arab Republic likely involved the use of a toxic chemical as a weapon. There is insufficient evidence to come to any firm conclusions as to the identification of the chemical, although there are factors indicating that the chemical probably contained the element chlorine." (S/2015/908, page 151, paragraph 5.19)

The Mechanism's investigation

Background

4. Sarmin (Idlib Governorate, Idlib District) is approximately 7-8 km south-east of the eastern outskirts of Idlib city, on the road to Saraqib. Binnish is approximately 5-6 km north of Sarmin, while the airfield of Taftanaz is 8 km north-east. Qmenas is 5 km to the south-west of Sarmin. The Bassel Al-Assad Airport in Latakia is located approximately 85 km away on the Mediterranean coast.

5. In the 2004 census, Sarmin had approximately 14,500 inhabitants. According to the FFM, due to the proximity of the front lines, Sarmin had been depopulated in 2015 to less than 5,000 people. In August 2014, The United Nations Office for the Coordination of Humanitarian Affairs had identified only 2,500 people in need in Sarmin and no internally displaced persons (IDPs), but a high number of IDPs were recorded in Idlib District. Other statements, however, have indicated that Sarmin still had a large population, and many of the IDPs had relocated there from Idlib.

6. In 2014, Government presence in Idlib had consisted of networks of checkpoints and military installations, one running along the M5 between the towns of Ma'arrat al-Numan and Khan Sheikhoun and the other along the M4 connecting Latakia to the city of Idlib.

7. In the summer of 2014, the Nusrah Front[1] began to clash with many of the armed opposition groups it had been fighting alongside against the Government

[1] On 30 May 2013, the Nusrah Front was designated as a terrorist group by the Security Council under resolution 1267 (1999).

before. Those included Jabhat al-Thuwar and Harakat Hazm. Consequently, the Nusrah Front took control of several regions and towns in Idlib Governorate, in addition to some of the weapons and facilities of those armed opposition groups.

8. On 15 December 2014, the Nusrah Front, as well as Ahrar ash-Sham, Jund al-Aqsa and fighters from other armed opposition groups captured the military bases Wadi al-Deif and Al-Hamidiyah, south of Ma'arat al-Nu'man, and thus gained control of the strategic M5 motorway north of Morek and several military checkpoints. This cut an important access route to Idlib, impeding the ability of Government of the Syrian Arab Republic to resupply its forces within the city and surrounding area.

9. By March 2015, Qmenas and Sarmin, immediately to the east of Idlib city, were controlled by armed opposition groups, as was Binnish to the north. Sarmin had been largely controlled by Liwa Dawoud until 2014, when the group's commander defected to join the Islamic State in Iraq and the Levant (ISIL). Some 100 fighters reportedly declined and returned to Sarmin to join other groups. Ahrar ash-Sham did confirm its presence in March 2015. Failaq al-Sham and other factions of Jaish al-Fatah were likely present.

10. Further to the east, both Saraqib and Taftanaz Military Airbase were also under control of armed opposition groups from November 2012 and January 2013, respectively.

11. The Government of the Syrian Arab Republic still controlled Idlib city and the military bases near Almastumah, south of Idlib. Pro-Government paramilitary National Defense Forces (NDFs) also controlled the nearby communities of Fouah and Kafraya, north of Binnish.

12. On 16 March 2015, there were two allegations of the use of chemicals as weapons in Sarmin and one in Qmenas. A witness stated that on 16 March 2015, the armed groups located in Qmenas and on the road from Qmenas to Sarmin had been preparing for the attack on Idlib city (which commenced 24 March 2015).

13. On 24 March 2015, several groups officially announced the formation of Jaish al-Fatah (elements included the Nusrah Front, Ahrar ash-Sham, Jund al-Aqsa, Failaq al-Sham and several other), which commenced operations to seize Idlib city. The city fell to their control on 28 March 2015.

14. By the end of May 2015, the FFM recorded allegations of five incidents of alleged use of chemicals as weapons in Sarmin.

15. Sarmin has one primary health-care centre, one private clinic and one field hospital, which was previously supported by the Syrian Arab Red Crescent (SARC), and now also by the Syrian American Medical Society (SAMS).

Narratives

16. The description that emerged from the FFM is that on 16 March 2015 around 2230 to 2300 hours local time, a helicopter dropped two barrel bombs filled with chlorine or chlorine derivative, resulting in the release of chlorine gas. One fell on an open field (location #1). The other fell through the ventilation shaft of a partially built house (location #2). There was a family of six living in the basement of the house, all of whom died in the incident. The population was warned through a local early warning system. Those close to the impact described the odour of chlorine.

Twenty-six people were treated in the hospitals of Saraqib and Sarmin after experiencing a feeling of suffocation.

17. The Government of the Syrian Arab Republic denied any air movements in the area that day and provided a different explanation of the people's exposure to chemical substances. The Government explained that Jund al-Aqsa fighters transported barrels filled with an unidentified liquid from underground hollows known as Maghawir al-Dawash, located between Sarmin and Qmenas. During a car accident, one of the barrels fell from the vehicle (location #3), releasing gas that affected the fighters as well as some residents in both Qmenas and Sarmin. All suffered from "asphyxiation".

18. Another description of the events, as given by another source, indicated that an air strike from the Syrian Arab Armed Forces (SAAF) in the vicinity of Sarmin around 2200 hours destroyed depots with conventional ammunition and non-poisonous chemicals. A fire led to the release of "caustic combustion gases" from the chemical agents, which was then used as a pretext for allegations against the Government of the Syrian Arab Republic. The Mechanism could not obtain information to confirm an air strike or the explosion of a munition depot. The Government of the Syrian Arab Republic stated that overflights were very common in that period but denied that there were any air operations on 16 March 2015, although they did not provide any documentation to support this.

Date and time

19. Three witnesses confirmed that the two incidents occurred on 16 March 2015 at approximately 2230 hours. No exact time was given for the alleged car accident or air strike on a munition depot.

Weather conditions

20. The sunset in Sarmin on 16 March 2015 was at 1741 hours. From 2200 to 2300 hours, the temperature ranged from 9°C to 10°C. The wind came from the west (260°) with a wind speed of 3 m/s. The relative humidity was at 96 per cent.

Impact location

Location #1

21. A witness' statement identified the first impact location in an agricultural field, adjacent to a target of potential military interest, at N35.902407° and E36.729282°.

22. Photos and videos from the Sarmin incident were forensically analysed for metadata extraction, image analysis and manipulation. A forensic institute, through image analysis and visual comparison with satellite images, confirmed the impact location.

Location #2

23. Three witnesses identified the house on a map where a device fell and six people died. Through analysis of photos, satellite images and videos the following coordinates were identified as the second impact location: N35.903257° and 36.729642E°.

24. The forensic institute, through image analysis and visual comparison with satellite images, confirmed the impact location.

25. Locations #1 and #2 are 90 metres apart. While no GPS coordinates or time stamp could be obtained from material, the forensic analysis established that all photographs and videos submitted include image content that was linked to at least one other image for the two locations. Nine pictures and seven videos have been analysed by a forensic institute.

Coordinates of location #2 as provided by different sources

Source	*Latitude (decimal)*	*Longitude (decimal)*
Witness	N35.903257°	E36.729642°
Witness	N35.903214°	E36.729650°
Witness	N35.903197°	E36.729594°
Forensic analysis	N35.903257°	E36.729642°

Location #3

26. The Maghawir al-Dawash hollows are located at the south-west outskirts of the village of Sarmin, close to a road that links Sarmin to Qmenas (N35.897722° E36.714589°). The exact location of the alleged car accident could not be determined.

Munition

Location #1

27. Three witnesses described “a barrel” (parts of the outer jacket) and several “canisters”. One of them stated that the canisters looked like those filled with refrigerant gas for refrigerators. That witness also described the odour of chlorine.

28. One witness described the outer jacket as a 125-cm long “make-shift” weapon, which was “obvious[ly] locally made”. It had three or four iron rollers, which were fixed rollers that could function as wheels. The barrel bomb was made of a thick metal.

29. The Mechanism analysed several pictures of the remnants of the munition and submitted several of them for forensic analysis. While no signs of manipulation of the pictures could be found, it appears that the remnants have been moved from the point of impact (crater) to the road.

30. The pictures show several exploded canisters, as well as pieces that were most probably parts of the outer jacket (“barrel”). On the outer jacket, “stabilizing fins” and the “wheels” can be seen.

31. According to explosive experts, the large size of the remnant parts of the outer jacket, indicate a smaller explosive charge. If the barrel had been filled with large amounts of explosives, it would likely have disintegrated into very small fragments. Theoretically, if a larger explosive charge did not function properly, the size of the remnants could be larger. However, no remaining explosives can be seen in the pictures.

Location #2

32. A witness said that the size of the munition ("barrel") was 150 cm in height and 60 cm or more in diameter. The witness stated that there were several gas canisters of the kind filled with refrigerant gas used in air conditioners. The canisters' had English inscriptions. The inside of the canisters was of a yellow colour. A video shows the remnants, damage and debris in each room of the house, as described by the witness. This witness had seen this several hours after the attack.

33. Several videos and pictures provided by witnesses and retrieved from open sources show the impact location and remnants. This includes videos taken by first responders who tried to enter the house during the night through thick smoke to rescue the family members in the basement, as well as videos showing the impact scene the next day. The device is understood to have fallen into a kitchen area. The outer jacket is visible in the pictures, in addition to a cylinder from a heating system that is not part of the munition. There is a lot of rubble and parts of a collapsed structure, while the dishes and items in the kitchen shelf are in place. In other videos, the kitchen shelves have been emptied, indicating that this video has been taken at an even later stage.

34. Some pictures and videos show exploded refrigerant canisters, as described by the witnesses, in addition to a reddish or purple substance on the floor. This is understood to be possibly from potassium permanganate. According to a forensic institute, potassium permanganate would be delivered as a powder. The purple liquid phase would be caused by a secondary effect, such as contact with water.

35. The FFM has been provided with samples, which were analysed in an OPCW-designated laboratory to determine whether any chemical substance had been used. Neither the FFM nor the Mechanism was able to establish the full chain of custody for these samples.

36. The canisters are HCFC[2] gas canisters used in different household items, such as refrigerators and air conditioners. Based on the scripts on a canister, it appears that the canisters are manufactured according to United States standard, as non-reusable canisters for disposal after use. The several canisters were produced by different manufacturers. These canisters could have been easily retrieved. However, to refill and repurpose the canisters to be part of the device, some modifications would have been necessary. A Member State provided the analysis that refilling the canisters would bear a high risk and require modification of the valves. For this process, some technical expertise and equipment, including the ability to create conducive conditions, would be required.

37. The indentation line, fractures and cuts in the metallic canister seem to be consistent with the use of a detonation cord. A blasting cap, fitted with the fuze, appears to have been taped to the base of the barrel, and the detonation cords fitted to the blasting cap and taped around the cylinders.

38. The plastic bottles are believed to be 500-ml-PET bottles filled with potassium permanganate (KMnO4). Mixing with the content of the refrigerant containers upon explosion, the potassium permanganate would have generated the chlorine. As discussed above, the potassium permanganate could have caused the purple colour

[2] Hydrochlorofluorocarbon.

of the soil. Potassium permanganate is used in pharmaceutical products, water treatment, disinfection products and for other civilian purposes; however, chlorine may be produced by the reaction of hydrochloric acid (HCl) with $KMnO_4$.

39. The laboratory analysis did not provide sufficient evidence to confirm the exact composition of the toxic substance used, but strongly supported the use of chlorine or a chlorine derivative. Higher concentrations of chloride were found in the inner surface of the refrigerant cylinders, compared with the exterior surface. This indicates that a chlorine containing substance was in the cylinders, either in the form of chlorine or HCl.

40. The presence of bornyl chloride was also found in a piece of wood removed from the affected building. This substance is the product of the reaction of HCl or chlorine (Cl_2) with alpha-pinene, a terpene-based wood ingredient.

41. It has been suggested that this could indicate a two-component reaction needed to produce the toxic substances, and other less toxic chemicals are contained in the device and brought to reaction upon impact. This theory has been supported by analysis provided by another source.

42. The presence of trinitrotoluene (TNT) was identified in some of the samples. This explosive is not normally found in detonation cords or in the cylinders and the hypothesis of the working model described above would not explain the presence of TNT. Traces of TNT may possibly be present due to contamination of the munition parts during construction. However, this needs additional analysis to verify the presence of explosives to allow a definitive conclusion.

Location #3

43. No further information could be found on a barrel of chemicals that fell from a truck, as indicated by the Government of the Syrian Arab Republic.

Delivery method

44. Eight witnesses heard at least one helicopter flying over Sarmin between 2230 and 2300 hours. Several of them stated that the helicopter(s) dropped two items. The statements about how much time was between the impacts are slightly diverging. The sound of the falling items was described as a diving fighter jet sound, flowed by a soft explosion.

45. One witness heard through a radio communication system used to intercept SAAF communication that a helicopter took off from Latakia airbase. The witness stated that one helicopter was returning to Latakia airbase after having dropped a barrel bomb on Qmenas at approximately 2130 hours. The helicopter flew over Sarmin between 2230 and 2330 hours and dropped two items. The pilot communicated with the base twice about having “executed”, with a difference of one minute. Then, the pilot informed the base and said “Sir, the barrels are at the terrorist area”.

46. One source shared their assessment that a helicopter departed from Latakia (Bassel al-Assad Airport) at 2215 hours and flew over Sarmin around 2250 hours, returning to base at 2325 hours. The Government of the Syrian Arab Republic stated that there had not been any SAAF flights from Latakia or other airbases in the

region on 16 March 2015, but, despite repeated requests, did not provide any supporting information (e.g., flight plans).

Location #1

47. The Mechanism analysed the impact, remnants and crater with a view to find out about the delivery method. Experts agree that the launch of a barrel of the size and kind described above from a land-based cannon or mortar-like launching system is not feasible, and highly unlikely from a rocket-based launcher.

48. Asked if the crater could result from the impact of a bomb dropped from a helicopter from high altitude, the expert stated that this was “quite likely”. The expert had used the following calculation: A steel barrel bomb of 60 cm diameter and 150 cm length, containing nine pressure tanks/canisters, filled with either hydrochloric acid or chlorine, and weighing approximately 390 kg.

49. A defence institute analysed the pictures of the remnants and conveyed its view that it had the “hallmarks of being dropped from an aircraft. Stabilizing fins are clearly visible […] and also a mount for attaching the device to the aircraft”.

Location #2

50. A ballistic expert analysis supports the statement of the witnesses, improbable as it sounds, that the device impacted through the ventilation shaft. There is a pale whitish mark on the right side of the shaft, which is likely the impact mark.

51. According to another forensic analysis, the deformation of the canisters and the plastic bottles is consistent with a mechanical impact, such as upon impact on the ground, and an explosive rupture, most probably through the detonation cord, set-off by the blasting cap. The sound produced at the impact would not be expected to be as loud as a device filled with explosives.

52. Another laboratory states that from the samples, it was “difficult to fathom” that the device was launched from the ground. The weight and location of the remnants would suggest that they fell from a helicopter, as this device would have been too heavy to launch from the ground. In addition, the canisters would have fallen further apart.

Location #3

53. The barrel “with an unidentified liquid” fell from a truck. No further information has been provided on the nature and filling of this barrel or the truck.

Damage and Effects

Location #1

54. According to a witness, the crater was 150 cm wide and 50 cm (or 75 cm) deep, which matches with the crater seen in the pictures, as well as several open source videos. A ballistic expert studied the crater and estimated the size as approximately 250 cm in diameter and less than 70 cm in depth, however, cautioning that matter could have fallen back into it after the actual impact, reducing the depth.

55. Differences in the colour of the grass can be observed around the crater. A satellite image vegetation index analysis shows “less healthy” vegetation at the open field on which the crater is (location #1) next to location #2. It is possible that this could have been caused by chlorine or other toxic chemicals, but it is also possible that there are other causes.

Location #2

56. The entry point of the device into the residential house (location #2) was a ventilation shaft. The device fell to the basement of a partially built house, and impacted in the kitchen. In the basement were, apart from the kitchen, three bedrooms and a hall. There is no crater; however, the basement of the house was partially destroyed.

57. A ballistic expert stated that the bomb appeared to have impacted onto the kitchen wall. In the expert’s view, the fact that objects and shelves appear relatively intact would exclude a major explosion. The structure or vault on its top might rather have collapsed when the kitchen wall was impacted, but it may also have been directly impacted. The damage could have been caused by the device impacting on one end of the ventilation shaft, bouncing against the rock wall, impacting walls and other structures below the upper floor, which when collapsing, pulled with it other parts of the ceiling and possibly a staircase. A defence institute shared this assessment and concluded that it was possible that the damage was caused by the kinetic effect of the impact (i.e., the barrel bomb broke the structure of the building after falling from high altitude).

58. The Government of the Syrian Arab Republic stated that the cause of the explosion of the house was an accident with a LPG [3] (cooking gas) cylinder. However, there is no evidence of fire inside the kitchen, which reduces the probability of an accident with LPG.

59. Also, as an expert analysis points out, there was no apparent blackening of the walls, which would be expected in an explosion or detonation of any high explosive. There were only signs of a very minor explosion, such as a detonating cord, having occurred, if any at all. A defence research institute noted that if there had been a large detonation, there should have been (a) more signs of scourging; (b) more damage to the items in the background; and (c) less remnants of the barrel bomb itself.

Medical effects

60. According to witnesses, 17 patients were treated by the Sarmin Field Hospital and 11 by the Saraqib Field Hospital. In addition, witnesses stated that 20 civil defence personnel also received first aid treatment as they had suffered secondary exposure. All six members of the family living at location #2 died.

61. A witness stated that a man, his wife and their youngest child managed to get out of the house and called for help. The eyewitnesses described an irritating smell, similar to chlorine used as a household cleaning agent but much more intense. This odour immediately induced coughing and a feeling of suffocation among all who were exposed. The three family members were brought to the Sarmin Field Hospital. The woman told first responders that the grandmother and two children

[3] Liquified petroleum gas, often referred to as propane.

were still in the house. Several first responders tried to rescue them but had to return because they were affected and suffered from symptoms ("suffocation") when they entered the house.

62. None of the witnesses provided information on how the other family members were finally evacuated. However, in the video material they appear in the hospital. The grandmother is apparently dead and the two other children are unresponsive.

63. A witness provided reports signed by medical doctors at the Sarmin hospital, confirming the deaths of the six family members, but not certifying the cause of death.

64. In an attempt to estimate the number of people that would likely be exposed to the release of chlorine, a basic simulation exercise of the possible chlorine dispersion was carried out. The exercise presents the probability and severity of injuries, considering the theoretical concentration of this chemical in the atmosphere.

65. To assess a more reliable number of casualties, certain aspects, such as position and distance from the terrain, rate of dispersion of the substance at source, urban characteristics and obstacles, topography and actual population density and characteristics (gender, age, pre-existing conditions, etc.) would need to be known. Nevertheless, with this in mind, the Mechanism used part of the model to assess the effect on the population exposed.

66. The death of six persons in this case may be explained as exposure that occurred in an underground confined space. As chlorine is heavier than air it would be directed to and remain in the lowest areas where it was released (i.e., the basement).

67. The model had predicted a higher number of affected people (91), based on a calculation in the city centre. Applying the predicted chlorine plume to the actual weather conditions and the impact location in the outskirts of the village, a lower number of affected people would be expected. The exact population density in the area at the time of the incident could not be established with certainty, thus, no exact calculation can be made.

68. In relation to the incident in which a barrel fell from a truck, it is noted that the accident would have had to happen quite close to Sarmin, in the vicinity of the Maghawir al-Dawash hollows, to cause exposure of any patients in Sarmin. Considering the wind direction, in an accident close to Sarmin on the road to Qmenas, a toxic gas could have been carried to Sarmin and affected people at the outskirts of Sarmin, particularly on its south-western border. However, this could not explain the people exposed in eastern Sarmin.

69. This accident allegedly affected the population of Qmenas and Sarmin. In order to affect the population in Qmenas, it would have had to occur near the outskirts of Qmenas, maximal 500 m from the centre of Qmenas. However, in that case it would be impossible for the population in Sarmin to be exposed to chlorine gas or other toxic gaseous substance, as the direction of the wind was not towards Sarmin but towards the south of the village.

The Leadership Panel's assessments

70. The Leadership Panel examined the existing information regarding the two impact locations in Sarmin on 16 March 2015. There is sufficient information for the Leadership Panel to conclude that the incident at impact location #2 was caused

by an SAAF helicopter dropping a device which hit the house and was followed by the release of a toxic substance, which match the characteristics of chlorine, that was fatal to all (6) occupants. The remnants of the device are consistent with the construction of a barrel bomb.

71. This conclusion was based on the following:

- Witnesses confirmed that at least one helicopter flew over Sarmin at the time of the incident.
- Expert and forensic analyses support witness statements that a device or barrel bomb dropped from a helicopter impacted through the ventilation shaft of a house (impact location #2) inhabited at the time by a family of six. The damage was consistent with the kinetic effect of a device or "barrel bomb" falling from high altitude rather than the explosion or detonation of any high explosive.
- Multiple videos of the location #2 show HCFC gas canisters inside the house, with a purple substance on the floor.
- The Government of the Syrian Arab Republic indicated that there had not been any SAAF flights on 16 March 2015, but did not provide any supporting information. However, the Mechanism obtained information from other sources, which corroborate witness statements of SAAF helicopter flights on the date and time of the incident.
- At the time when the incident occurred, the Government of the Syrian Arab Republic had lost control of six airbases, including Taftanaz airbase (Idlib Governorate). The Government informed the Mechanism that 15 helicopters were left behind of at Taftanaz airbase, nine of which were deemed operational.
- The Leadership Panel reviewed all of the information gathered and found no evidence that armed opposition groups in Sarmin, were operating a helicopter at the time and location of the incident.

Annex IX

Binnish, 24 March 2015

Findings of the OPCW Fact-Finding Mission in the Syrian Arab Republic

1. "The FFM team interviewed only one person from Binnish, who was a treating physician at the time of the alleged incident." (S/2015/908, page 112, paragraph 3.76) On 23 March 2015 at around 1900 hours, the physician was in the field hospital and was informed of the incident through local early warning methods, including hand-held radios. (S/2015/908, page 112, paragraph 3.78)

2. Binnish Field Hospital registered 21 patients related to the incident on 23 March 2014. (S/2015/908, page 112, paragraph 3.79)

3. "In itself, no one source of information or evidence would lend particularly strong weighting as to whether there was an event that had used a toxic chemical as a weapon. However, taken in their entirety, sufficient facts were collected to conclude that incidents in the Syrian Arab Republic likely involved the use of a toxic chemical as a weapon. There is insufficient evidence to come to any firm conclusions as to the identification of the chemical, although there are factors indicating that the chemical probably contained the element chlorine." (S/2015/908, page 151, paragraph 5.19)

The Mechanism's investigation

Background

4. Binnish (Idlib Governorate, Idlib District) is located 8 km north-east of Idlib. Sarmin is 6 km to the south and Saraqib 12 km to the south-east. The airfield of Taftanaz, under control of armed opposition groups, is 6 km to the north-east.

5. In the 2004 census, Binnish had about 21,848 inhabitants. A witness stated that in March 2015, Binnish had a population of approximately 5,000 at the time of the incident, as large numbers of people had been displaced from there. In August 2014, a report from the United Nations Office for the Coordination of Humanitarian Affairs indicated 8,500 internally displaced persons (IDPs) in Idlib District.

6. In 2014, Government presence in Idlib consisted of networks of checkpoints and military installations, one running along the M5 motorway between the towns of Ma'arrat al-Numan and Khan Sheikhoun, and the other along the M4 motorway connecting Latakia to the city of Idlib.

7. In the summer of 2014, the Nusrah Front[1] began to clash with many of the armed opposition groups it had been fought alongside against the Government before. Those included Jabhat al-Thuwar and Harakat Hazm. Consequently, the Nusrah Front took control of several regions and towns in Idlib Governorate, in addition to some of the weapons and facilities of those armed opposition groups.

[1] On 30 May 2013 the Nusrah Front was designated as a terrorist group by the Security Council under resolution 1267 (1999).

8. On 15 December 2014, the Nusrah Front and armed opposition groups, including Ahrar ash-Sham and Jund al-Aqsa, captured the military bases Wadi al-Deif and Al-Hamidiyah, south of Ma'arat al-Nu'man, and thus gained control of the strategic M5 motorway north of Morek as well as several military checkpoints. This cut an important Government access route to Idlib, impeding the ability of the Government of the Syrian Arab Republic to resupply its forces within the city and surrounding area.

9. On 23 March 2015, the Government of the Syrian Arab Republic controlled Idlib city and the military bases near Almastumah, south of Idlib. Pro-Government paramilitary National Defense Forces (NDFs) also controlled the nearby communities of Fouah and Karfaya, north of Binnish.

10. Binnish was largely controlled by the Nusrah Front and Ahrar al-Sham. Failaq al-Sham and other groups were also reportedly present. According to the Government of the Syrian Arab Republic, on 23 March 2015, fighters of the Nusrah Front and armed opposition groups had gathered in the western part of Binnish in preparation for the attack on Idlib city, and were targeting checkpoints of the Syrian Arab Armed Forces (SAAF) towards Idlib with mortar fire, to which Government forces responded with artillery.

11. On 24 March 2015, several factions officially announced the formation of Jaish al-Fatah. This included elements of the Nusrah Front, Ahrar ash-Sham, Jund al-Aqsa, Failaq al-Sham and several others. Jaish al-Fatah commenced operations to seize Idlib city. The city fell to control of Jaish al-Fatah on 28 March 2015.

Narratives

12. The description of events as emerging from the Fact-Finding Mission (FFM) report indicates that on 23 March 2015,[2] a helicopter dropped a barrel bomb filled with chlorine or chlorine derivative between 1900 and 2000 hours. Chlorine or chlorine derivate was released, affecting 21 people. The Mechanism further investigated the events, and established that the date of the incident was 24 March 2015. Also, two possible impact locations were identified and considered.

13. The Government of the Syrian Arab Republic stated that no incident took place on either of the dates and that armed opposition groups or their supporters staged the use of chlorine as a weapon with the intention to blame the Government.

14. One witness provided hearsay information during an interview about the explosion of a warehouse, in which chemicals were stored. The witness stated that on 22 or 23 March 2015, there had been an explosion around 1930 hours. The witness recounted the testimony of family members. According to them, yellow and white smoke went up to the sky. One family member had breathing difficulties as a result of inhaling something with a distinct smell. The smell was also noticed by another family member. Other people from Binnish told the witness that there had been an explosion in Binnish at a warehouse containing gas cylinders, used to produce “hell-cannons”. The neighbourhood, in which this warehouse was reportedly located, in addition to the time of the accident, do not match the date established by the Mechanism.

[2] FFM referred to the date of the incident as being 23 March 2015, however the Mechanism established the time of the event as 24 March 2015 around 1900 hours.

Date and time

15. While the FFM referred to the date of the incident as being 23 March 2015, the Mechanism established the time of the event as 24 March 2015 around 1900 hours.

16. Four witnesses indicated that the incident took place around 1900 hours local time on 24 March 2015. According to one witness, the Binnish hospital started receiving patients around 1915 hours. A second witness stated that a telephone call was received from people in Binnish about the attack at 1900 hours.

17. Several photo and video files have been submitted for independent forensic analysis. For some of the files, the original metadata — including time stamps — had been wiped out and could not be determined.

18. Several individuals posted information concerning this incident on social media websites, starting around 1930 hours on 24 March 2015. Another source provided its assessment to the Mechanism that confirms the same date and time.

19. Two witnesses indicated a different time for the incident on 24 March 2015. One of the two witnesses thought the event might have occurred between 2200 and 2300 hours. Another one had heard military radio communications on a walkie-talkie before the attack and during the treatment of patients at the Binnish hospital.

Weather conditions

20. The sunset on 24 March 2015 was at 1748 hours. At 1900 to 2000 hours, the temperature was 11°C. The wind came from the north-west (320°) and the wind speed declined from 3 m/s to 2 m/s. The humidity was at 95 per cent. It was partly cloudy.

Impact location

Location #1

21. A witness identified the impact point on 24 March 2015 in an agricultural field on the south-eastern side of Binnish, at the coordinates N35.955286° E36.717797°. Another witness described the same impact location of a barrel bomb in the south-eastern area of Binnish in an agricultural field.

22. The location was further corroborated through forensic examination of photographs provided by one of the witnesses. The forensic institute stated that while there was no GPS information in the metadata, comparative image analysis indicates that the pictures were likely taken at the same location.

Location #2

23. A second unexploded barrel bomb has been reported to have landed in a northern neighbourhood by a witness and an independent organization that published this information on open sources. However, there is some discrepancy about the locations, which are over 200 m apart from each other. The witness also indicated that the remnants of this device were buried in a nearby field.

Coordinates of location #2 as provided by different sources

Source	*Latitude (decimal)*	*Longitude (decimal)*
Witness	N35.959185°	E36.713626°
Open source	N35.957925°	E36.711673°

24. A report published on an open source referred to the same location and remnants, but indicated that the incident occurred on 23 March 2015 at 1430 hours. A video from that date had also been posted, as well as the recovery of the remnants, which was indicated to have taken place on 26 March 2015.

25. No additional information is available with regard to the second reported barrel bomb. The Mechanism has been unable to find additional or corroborating information on the second impact location.

Munition

26. A witness identified location #1 and described the munition as a barrel bomb, which the witness thought contained six canisters filled with chemicals. The witness estimated the size of the munition as approximately 60 cm in diameter and 150 cm in length. At least one of the canisters remained intact.

27. Pictures of the outer jacket of the munition at location #1 were received from a source. Forensic examination is pending at the time of submission of this report. The same source stated that at least one unexploded canister and a plastic bottle with a dark, crystallized liquid recovered from location #1 was in its possession. There was no evidence of remnants of any other canisters.

28. The chain of custody for the remnants was attested by the source based on the testimony of a witness and a written confirmation by the organization that had collected the samples.

29. The same source also provided a laboratory report on the canister and the content of the plastic bottle. This report indicates that the recovered canister is an HCFC[3] gas canister. Although the contents had leaked from a rupture in the bottom, traces of chlorine or a chlorine-like substance had been found on the inside of the canister. The report also concluded that the content of the plastic bottle had been potassium permanganate. The source shared its assessment that the munition consisted of multiple HCFC gas canisters, in addition to several plastic bottles containing potassium permanganate, placed in a large barrel.

30. The two other witnesses who were first responders stated that they recovered remnants of both munitions and that they had buried the remnants out of fear of the chemicals they believed it contained. The Mechanism could not confirm the location where the remnants were allegedly buried.

31. There is no video documentation of the impact location, dismantling and excavation of munition, remnants or crater. Pictures of the place where the remnants were allegedly buried, including of the outer jacket of the munition, have been submitted to the Mechanism on 19 August 2016 and have been submitted for

[3] Hydrochlorofluorocarbon.

independent forensic analysis, the results of which are pending at the time of the submission of this report.

Delivery method

32. According to three witnesses, a SAAF helicopter dropped barrel bombs with chemicals. Open sources indicated that there were continuous air operations taking place over Binnish during this period, including on 24 March 2015, which was also confirmed by other sources.

33. The Government of the Syrian Arab Republic informed that no SAAF flight operations took place in the Binnish area on 24 March 2015. The Government did not, however, provide any supporting documentations, such as flight records.

34. Two sources shared their assessment that on 24 March 2015 at 1930 hours, a helicopter departed from Bassel Al-Assad Airport in Latakia in the direction of Idlib. It passed over Binnish at 2015 hours and returned to base at 2107 hours.

35. However, the specific times referred to above do not correlate with the time of the incident 1900 hours, when first affected people sought medical assistance.

Damage and effects

36. Two witnesses had visited the impact location in the agricultural field (location #1) and noted that there was damage to the vegetation manifested by a distinct yellow colour and “dead flora” in the area of the impact. Pictures of the area of damaged foliage were provided to a forensic laboratory which shows that the pictures were taken in Binnish.

37. A satellite imagery analysis indicated that there was no crater visible, but a soil distortion that might be related to an impact. A vegetation index analysis showed that, at this location and two areas in the immediate vicinity, the vegetation was less healthy. This could have been caused by chlorine, other toxic chemicals or other factors. The Mechanism obtained photographs of a site where remnants were buried including an outer jacket, a canister and a plastic bottle, but cannot corroborate this site is also the original impact site.

Medical effects

38. The Binnish hospital registered 21 patients related to the incident. Ten of these were mild cases, ten were moderate cases and one was identified as a severe case. The clinical examination demonstrated that most of the cases were presented with the following symptoms: coughing, difficulty breathing and drowsiness. There were no deaths reported. Two witnesses confirmed the testimony of the treating physician interviewed by the FFM with regard to the extent and type of symptoms of the patients.

39. Two witnesses had indicated that all patients were decontaminated, including washing of the exposed area of skin, outside the hospital, five to 10 m from the emergency room. The physician did not smell chlorine odour emanating from the clothing but was informed of the smell by the patients. The video seems to show patients entering the hospital directly without having been decontaminated.

40. A forensic analysis of the plume effect of the chlorine dispersion on the date and time of the incident indicates that the number of the reported injuries is

consistent with the use of chlorine under the prevailing weather conditions. However, this analysis did not take into account the topography and any obstacles, such as houses.

41. The Government of the Syrian Arab Republic shared their assessment of a video retrieved from an open source. The video, titled “Poisonous chlorine gas leads to suffocation in the countryside of Idlib”, shows patients being treated in a health facility. The Government of the Syrian Arab Republic indicated that according to their analysis the video was staged.

42. Independent forensic analysis indicated that the creation date of the file, based on the information in the metadata, was 29 March 2015 at 0330 hours. However, the creation date for this video likely corresponds with the date on which the modified file was created, not the original file.

43. Photographs of the patients taken in the hospital at the time of the incident have been forensically examined, and the conclusion reached is that the pictures were taken in the same place.

44. Whether the scenes in the footage are “staged” cannot be determined by video analysis. It is, however, noted that the patients appear relatively unaffected by the typical symptoms. No red eyes, tearing, paleness, sweating, cyanosis or breathing difficulties can be observed from the footage. The patients interviewed in the video show little or no signs of having been exposed to a toxic chemical.

45. The structure and extent of video material on the Binnish case shows only the activity at the hospital.

The Leadership Panel’s Assessment

46. The Leadership Panel examined the available information regarding the incident in Binnish on 24 March 2015 and was able to confirm the existence of a canister with traces of chlorine or a chlorine-like substance. It has further received additional information in relation to remnants of the outer jacket of a device that is consistent with the construction of a barrel bomb.

47. The Leadership Panel was close to having sufficient information to reach a conclusion on the actors involved on the basis of the chain of custody on the remnants found and the overall findings of the FFM. However, there are inconsistencies in the case, including the link between the remnants and the impact site(s), accounts of the explosion and affected individuals, which are being further investigated.

48. This assessment was based on the following:

- According to three witnesses, a SAAF helicopter dropped a device or “barrel bomb” with chemicals at night over Binnish. However, there are inconsistencies in relation to the date and time of the incident, the impact location(s) and the description of the exposure to toxic chemicals suffered by the local population.
- Despite the inconsistencies and scarcity of information surrounding this case the Mechanism has been able to corroborate some key elements such as the remnants recovered by local respondents from an agricultural field in Binnish

which were subsequently recorded and documented. The remnants found at location #1, i.e. the outer jacket, a canister and a plastic bottle, are consistent with the construction of a barrel bomb. The canister and the content of the plastic bottle were analysed by a laboratory which found traces of chlorine or a chlorine-like substance in the canister. The laboratory also concluded that the content of the plastic bottle had been potassium permanganate. The chain of custody for these remnants was established.

- The Mechanism could not obtain any information concerning the explosion of the device. Nevertheless it has received information on the impact location, which is being forensically analysed.

Annex X

Marea, 21 August 2015

Findings of the OPCW Fact-Finding Mission in the Syrian Arab Republic

1. "The team can conclude […] with the utmost confidence that at least two people were exposed to sulfur mustard […and] it is very likely that the effects of sulfur mustard resulted in the death of an infant." (S/2015/908, page 215, paragraph 4.6)

The Mechanism's investigation

Background

2. Marea (Aleppo Governorate, Azaz District), is located 35 km north-east of Aleppo city and 18 km south of the Bab al-Salam border crossing to Turkey. In the 2004 census, Marea had a population of close to 17,000 in the city and 40,000 in the Marea sub-district.

3. In July 2015, two coalitions of armed opposition groups (Fatah Halab and Ansar al-Sharia) launched a major offensive against Government forces in western Aleppo city, capturing the Scientific Research Centre to the west of the Jamiyat al-Zahra frontline.

4. The Islamic State in Iraq and the Levant (ISIL),[1] which controlled territory to the east, north-east and south-east of Aleppo city, took advantage of the armed opposition groups' engagement with Government forces to advance westward towards Marea. This was of strategic importance due to Marea's location near key routes through Azaz and the Bab al-Salam border crossing.

5. By August 2015, Ahrar al-Sham, Failaq Al-Sham and other Free Syrian Army-affiliated groups had moved reinforcements to Marea to counter ISIL's advance towards the west. Heavy clashes were reported in Tilalyan on the North and Umm Hawsh in the south. However, by 26 August, ISIL had circled Marea by three sides, effectively besieging the city.

6. Marea had been a traditional stronghold of armed opposition groups, such as Liwa al-Tawhid, whose leadership originated there. Other armed opposition groups present in August 2015 included Jabhat al-Shamiyah, its faction Thuwar al-Sham, Failaq al-Sham, Ahrar al-Sham, the 101st Infantry Brigade, the Firqa 13 and Jaish al-Thuwar. The Nusrah Front was present in and around Marea, too.

7. The Al-Houria Hospital in Marea is supported by a non-governmental organization. It provides mainly emergency health care and transfers severe cases to Tal Rifaat Hospital.

---

[1] On 30 May 2013, Islamic State in Iraq and the Levant (ISIL) and the Nusrah Front were designated as terrorist groups by the Security Council under resolution 1267 (1999).

Narrative

8. The Fact-Finding Mission (FFM) stated that on 21 August 2015 around 1000 to 1100 hours, over the course of approximately one hour and a half, Marea was bombarded by around 50 artillery projectiles. (S/2015/908, page 201, paragraph 3.7)

9. Several witnesses, other sources and independent entities supported this description of the events. Accordingly, on 21 August 2015 over 50 artillery projectiles, several of which were filled with sulfur mustard, were fired towards Marea from the east or south-east. On that and the following days a number of people reported to the hospital with symptoms related to exposure to sulfur mustard.

10. The Mechanism considered an alternative hypothesis, in which an accident occurred within Marea. That it could either have been an operational incident, for example, while trying to fill munitions with sulfur mustard, or in form of a leakage due to the detonation of a conventional munition. However, no information was found to substantiate this theory, which would also not explain the exposures of the victims.

Date and time

11. Two eyewitnesses stated that Marea was subjected to artillery fire on 21 August 2015. Five other sources stated this occurred on 21 August 2015 between 0930 and 1130 hours, Marea. The Government of the Syrian Arab Republic shared its assessment that the shelling started at 0930 hours.

Weather conditions

12. On 21 August 2015, between 0900 and 1100 hours, the wind came from the west (280°) at a speed of 5 m/s. The temperature increased from 27°C to 32°C and the relative humidity decreased from 90 per cent at 0900 hours to 83 per cent at 1100 hours.

Impact location

Location #1

13. One artillery shell hit a house “close to the vegetable market” in the south-east of Marea. Two witnesses gave the address as Mouabbad Street.

Location #2

14. A different artillery shell fell in the courtyard of a house. An individual who disposed of the shell was exposed to a dark liquid that leaked from that shell.

Other locations

15. A witness mentioned several additional impact points of artillery shells across the city, with some landing close to the water reservoir. For those shells, the Mechanism does not have any indications of whether they were filled with sulfur mustard.

16. A map provided by an independent organization shows multiple impact sites of artillery shells equally distributed throughout the town. Among those indicated impact points, it is unclear which shells were filled with sulfur mustard.

Munition

Location #1

17. Some witnesses said that their house "had been shelled", but did not provide any further information on the exact type of the delivery method or munition.

Location #2

18. A witness provided pictures of artillery shells, stating that they were 130 mm shells. The witness described that the shell created a small hole in a wall and removed a small piece (10-16 cm) of tarmac.

Location #3

19. A witness said that an unexploded artillery shell landed on a roof of a house in the south-east part of Marea.

General

20. Witnesses stated that on 21 August 2015 over 50 artillery shells fell all over the town of Marea. One witness stated that the artillery shelling lasted over one hour with a frequency of one artillery shell per minute Several open sources also refer to the artillery shelling of Marea on 21 August.

21. Four other sources stated that the munition used in all these locations were 130 mm artillery shells. These artillery shells are thought to be easily repurposed and filled with different payloads.

22. The Mechanism received more than 20 photos and 61 videos of the munition used in Marea from different sources, witnesses and entities. Some of these photos indicate that the agent release method of the munition was improvised and unsophisticated. Forensic examination of the pictures with regard to the munition type was inconclusive. The pictures of the munition show that they had been moved from the impact point to the location where the pictures and videos were taken.

Delivery method

23. In relation to 130 mm artillery shells, the Government of the Syrian Arab Republic stated that they had not abandoned nor did any armed opposition group seize 130 mm towed field guns, which were used to launch these munitions, during their retreat from this area in December 2012. The Government stated, however, that ISIL may have had access to such weapons in Northern Iraq, which was under ISIL control. Open sources information shows pictures of ISIL having 130 artillery shells and towed-field guns.

24. A witness stated to have seen the launching of artillery shells from a roof. According to this witness, the shelling originated from either Tel Malid (about 5 km in the south-east) or from Al-Sayed Ali, a few hundred metres south of Tel Malid. Another witness stated that ISIL had launched the shells from Hawar al-Nahr (about 5 km in the north-east-east) or Ahtemelat (about 10 km in the north-north-east).

25. Several sources, including the Syrian Arab Republic, stated that the shells came from the east.

26. The Mechanism attempted to corroborate the direction which the artillery shells came from and requested a forensic institute to conduct imagery analysis, including comparison with satellite imagery. However, this analysis did not yield any tangible results. The forensic institute confirmed that all of the videos and photos analysed had not been tampered with. The Mechanism could not establish a direct link between these images and exposure of people.

27. The Mechanism requested additional satellite imagery of the area around Marea to identify a potential source. Some imagery was received on 19 August and analysis is ongoing.

Damage and effects

28. The videos from one of the impact locations show a lot of destruction and damage on the houses. No crater can be seen in any of the videos. One witness described that the artillery shell created a small hole in a wall of a house and removed a small piece (10-16 cm) of tarmac from the wall.

Medical effects

29. A family of four persons who were residing in the house at location #1 have been exposed to sulfur mustard. The exposure of two of these family members was confirmed by the FFM. In addition, a witness stated that a family of five was exposed.

30. One individual was exposed while removing an artillery shell. There is a video of this individual at the hospital, in which clinical symptoms such as blisters on the left leg can be seen. The person stated that when carrying a shell in order to bury it in the ground and a liquid leaked out of the shell over his/her leg causing the blisters. A witness confirmed the identity of the injured person that appeared in the video. Forensic analysis did not yield any further information.

31. Different sources report up to 85 people seeking medical assistance with injuries and symptoms related to sulfur mustard exposure over the course of the next four days. The number of injured have been cross-checked with reports from several sources, who indicated numbers as “at least 10”, “50” and “up to 85” casualties. One witness said that 23 people sought medical attention on 21 August 2015, and more than 60 over the next few days.

32. The medical effects described by the FFM were consistent with witness statements and reports of independent organizations.

33. In order to find more information on the munition and delivery method, the Mechanism undertook several activities to identify additional victims. However, no additional victims have been found to date.

Further information

34. Sulfur mustard is a colourless, viscous liquid, odourless in its distilled, pure form. However, if not stabilized properly, it can easily polymerize resulting in a yellow-brown liquid of increasing density with an odour resembling mustard plants, garlic or horseradish.

35. Several witnesses, entities and other sources referred to the bad smell in the area (e.g., smell of garlic, rotten eggs, irritating, very bad). Several pictures from

different sources show a dark viscous liquid. The examination of the pictures by a forensic institute could neither confirm nor exclude that the liquid on the photo is sulfur mustard.

36. Multiple sources suggested that the sulfur mustard in question was undistilled and had been generated through the Levinstein process. According to them, the bad smell (rotten eggs) and colour of the substance (dark green/blue) were consistent with sulfur mustard used by ISIL in other incidents, including in a neighbouring State. The olfactory observation of a rotten smell supports the assessment that the sulfur mustard may have been produced through the Levinstein process. The smell is stronger when undistilled, similar to that of rotten eggs, due to impurities of such reactions.

37. Some sources provided information that indicated that ISIL had the capacity to produce sulfur mustard through the Levinstein chemical reaction process.

38. The Organizsation for the Prohibition of Chemical Weapons (OPCW) confirmed that the sulfur mustard from the Syrian Arab Republic did not contain impurities such as polysulphides, meaning that a different process was used by the Government. The OPCW also reported that the sulfur mustard used by ISIL in northern Iraq on several occasions in 2015 and 2016 was produced through the Levinstein process.

39. The Mechanism requested clothing from victims and environmental or certain biomedical samples. However, none were made available to the Mechanism for further analysis, despite repeated requests.

40. There is not sufficient information available to draw conclusions on the origin of the sulfur mustard used during this incident.

The Leadership Panel's assessment

41. The Leadership Panel examined the existing information regarding the incident in Marea on 21 August 2015 and determined that there is sufficient information to conclude that the Islamic State of Iraq and the Levant (ISIL) was the only entity with the ability, capability, motive and the means to use sulfur mustard in Marea on 21 August 2015.

42. This conclusion was based on the following:

- Marea had been a traditional stronghold of armed opposition groups, which were fighting against Government forces. On 21 August 2015, ISIL advanced westward towards Marea.
- Several witnesses, as well as a number of other sources provided information that Marea was bombarded by around 50 artillery shells, several of which were filled with sulfur mustard, from the east or south-east, an area under the control of ISIL.
- On that and the following days a number of people reported to the hospital with symptoms related to exposure to sulfur mustard.
- A large number of photos and videos of the munition used in Marea were received and analysed by the Mechanism. Four sources stated that the munition used was 130 mm artillery shells. The photos and videos of the

munition are consistent in relation to the release of a dark viscous liquid from the artillery shell.